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GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and facilities for such dispatch.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 a.m. till 5.30 p.m.
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Home Railway Capital

THE contention that the present capitalisation of the main-line railway companies was determined by the Railways Amalgamation Tribunal by proved earning capacity is made in a recent editorial article in *The Financial Times*. This pointed out that in interpreting Section 6 of the Railways Act, 1921, the Chairman of the Tribunal said: "We are substantially directed to consider the net-revenue earning basis," when adjudicating on fusion schemes. Some £152,000,000, or 12½ per cent. of old capital of various lines was eliminated and the remainder was judged to have demonstrated its ability to earn the revenue which the Act envisaged for it. Therefore, there can be no justification for suggestions sometimes made in irresponsible quarters that the present capital is heavily watered. After pointing to the manner in which revenue was forgone in recent years by stockholders, in order to keep their properties up to a high level of efficiency, *The Financial Times* points out that the achievement of the railways during the war must go in its entirety to the credit of private capital and private enterprise, and that whatever the future form of ownership is to be, the true significance of their capital position ought to be recognised.

Mr. R. A. Riddles

The return of Mr. R. A. Riddles to the L.M.S.R., where he succeeds Mr. Symes as Chief Stores Superintendent, has brought to a close four years of intensive work in the Royal Engineer Equipment Department of the Ministry of Supply, with which, however, Mr. Riddles will continue to be associated in an advisory capacity. During his time there, first as Director of Transportation Equipment, and later as Deputy Director-General, Royal Engineer Equipment, Mr. Riddles performed vital work of extraordinary variety. Our readers will associate his name most closely, perhaps, with the British-built "austerity" locomotive, but his responsibilities ranged over a very wide field; to name but a few, all forms of rolling stock, can-making plants, gas producers, distillation plants, excavators, dumpers, and all road-making equipment, came within his orbit as Director-General, Royal Engineer Equipment, so also did bridging materials, land and assault craft, and he was also responsible for the co-ordination of supply and demand relating to stationary internal-combustion engines. These few items selected at random give some idea of Mr. Riddles's versatility, which will stand him in good stead in his new appointment as Chief Stores Superintendent of our largest railway, the purchases of which amount to some millions of pounds a year.

The Pioneer of Railway-Owned Bus Services

So much has been written and said within recent years of the road versus rail war, that the view has come to be accepted by many persons that the two forms of transport are in essence, and always have been, opposed forces. Additional colour to this impression has been given by the existence of early anti-railway literature, but it is entirely erroneous to suppose that anti-railway views persisted after those very early years, or even that they lived very long after 1835. From then until well into the present century there was general friendliness and close working relationships between rail and road transport, which is understandable when it is recalled that the lack of mechanical road transport caused an automatic division of function, with the rail handling long-distance traffic, and the road providing feeder services and collection and delivery. Most feeder road services in horse transport days were provided by contractors, and in some cases the railways paid a subsidy to them. Just forty years ago, when there were no motor transport contractors, the G.W.R. began its activities as a motorbus operator, and, although direct operations have ceased over a decade, they are represented today by substantial shareholdings in associated motorbus companies. Some notes on the pioneer work of the G.W.R. in this sphere form the subject of an article on page 158.

Buses Instead of Light Railways

In the early years of the present century many outlying parts of the country which were without rail facilities hoped that the passage of the Light Railways Act would solve their difficulties, and agitated for the main-line railways to promote branches as light railways. It was in such an area, where public agitation was pronounced, that the first G.W.R. bus service was operated. Speaking at a meeting of the company on August 13, 1903, Lord Cawdor announced the impending opening of the Helston-Lizard route, and said: "there has been one light railway sanctioned there, if not more, but there has been always a failure to get the money. The money is not there, but by putting a motor car on the road we shall find out what the traffic amounts to. It is not a heavy expenditure, and the convenience will be that if the motor car does not succeed in one

place we can take it to another." This policy so far justified itself that many hundreds of thousands of pounds of light railway construction were saved. The following table gives a few examples:—

Route and Estimated Light Railway Cost	Remarks
Helston-Lizard £85,000	G.W.R. motor service begun August 17, 1903
Calne-Marlborough £75,000	G.W.R. motor service begun October 10 1904, but failed to pay, and suspended, September 30, 1913
Windsor-Ascot £424,849	G.W.R. motor service begun April 5, 1905
Penzance-St. Just-Land's End ... £140,000	G.W.R. motor services: Penzance to Land's End begun April 3, 1904; Penzance to St. Just, May 16, 1904
Saltash-Callington £120,000	G.W.R. motor service begun June 1, 1904; replaced subsidised horse service

On the other hand, the G.W.R. bus service between Lampeter and Aberayron which was begun on October 1, 1906, developed substantial traffic in advance of the completion of the railway between these points, and was then withdrawn on May 14, 1911.

Costs on the Great Northern Railway (Ireland)

Some idea of the difficulties with which the Great Northern Railway (Ireland) has to contend may be understood from the evidence given on August 3 by Mr. Geo. B. Howden, the General Manager, before the Railway Tribunal in Dublin, on an application for an increase of merchandise rates by goods and passenger trains. He explained that the company's trading for the first half of this year showed an improvement of only £608 compared with the corresponding period last year, whereas traffic expenditure for the same period had increased by £101,204, or 10·8 per cent. Coal had increased in cost by 64 per cent. since January, 1941, and by 189 per cent. since 1939, and even at the exceedingly high prices now prevailing, it was most difficult to obtain. Advances in salaries and wages since 1941 amounted to £453,230, and on June 28 last the company had received a combined application from the railway trade unions for a further advance which, if granted, would cost £120,000 a year. The proposed increase in rates represents an advance of 10 per cent. on the existing scales which in some cases are 25 per cent. above those prevailing in 1939. It is intended that the revised maximum charges shall apply between the company's stations in Eire and also to certain cross-border stations. Judgment has been reserved.

Railway and Road in Northern Ireland

The view that Northern Ireland would be the first place—in any country in the world probably—where a railway system would not be necessary was expressed by Mr. D. L. Clarke, Chairman of the Northern Ireland Road Transport Board, when giving evidence before the Agricultural Inquiry Committee in Belfast. This sweeping statement, however, was qualified to some extent by Mr. Clarke's inability to visualise a time when a complete and well-organised system of road transport would meet all public needs, as the time, in his opinion, was not yet. Indeed, he went on to say that so far as could be seen, in the post-war years a railway system would be desirable for passenger and goods traffic, but not the railway system as it existed today, and he was against any extension of that system in Northern Ireland. There were difficulties in establishing a complete amalgamation between road and rail, but some sort of blended system under public control, adequate to, and in accordance with, the size of the province, was essential if waste and overlapping were to be avoided. The form of public control envisaged by Mr. Clarke was a public utility company, with members appointed by the State.

U.S.A. Diesel Enginemens' Pay

The enquiry into the pay of diesel enginemens in the United States, to which reference was made in our July 16 and 23 issues, concluded at the end of May, when the emergency board of the National Railway Labour Panel made its report to President Roosevelt. It will be remembered that the men's unions claimed that their pay should be based on the horsepower of their locomotives, instead of on adhesion weight, as hitherto, and that every multiple-unit diesel-electric locomotive should carry an additional man at the head-end; the railway companies estimated that these, with other changes demanded, would involve an annual addition of \$12,000,000 to their wage bill. The board has declined to recommend the alteration from adhesion weight to horsepower as the wage basis, but has recommended that certain maximum adhesion weights, beyond which the present wage scales do not rise, should be abolished, in view of the modern developments in motive power, and that the sliding scale based on adhesion weight should continue upwards indefinitely. Because on multiple-unit diesels the fireman normally spends from 50 to 85 per cent. of his time in the machinery rooms, attending to the engines, the board has recommended that, in the interests of safety, a second fireman should

be carried on all multiple-unit diesels in high-speed service, so that two men may always be in the driving cab to ensure efficient look-out. The board's recommendations would not involve an addition of more than \$3,000,000 to the annual wage bill.

German Holiday Travel

The normal holiday period for adult workers (manual or otherwise) in Germany has been fixed at 14 weekdays, with an additional week for persons over 50 years of age. This is slightly more generous than is the wartime custom in Great Britain, but it has the advantage of staggering transport, a matter of considerable importance to the Reichsbahn, as the efforts to discourage long-distance travel have proved largely unsuccessful, by reason of the abundance of money resulting from wartime wages. The Reichsbahn has announced that no trains will be duplicated this summer, nor will any special trains be operated during holiday periods. Overcrowding is particularly severe on Saturdays and Sundays, and an order has been made that holidays should begin on the mid-week days of Tuesday to Friday (inclusive), but this is generally disregarded. A considerable volume of long-distance travel results from the desire of Germans whose industries have been evacuated to spend their holidays with their own families.

Heavy Railway Traffics in Egypt

In Egypt, as in most countries directly concerned with the war effort, precise information is lacking as to the enormously increased volume of traffics being handled by the railways. A recent statement of the Egyptian State Railways, however, has given some indication. This pointed out that heavy traffics are imposing a great strain on the system because its rolling stock is inadequate to the demand. With the object of reducing traffic, both passenger and freight rates have been increased, but these steps have not been successful in deterring traffic. From April 1, 1942, an increase of 10 per cent. was made for third class tickets, 15 per cent. for second class, and 20 per cent. for first class; on June 1 of last year these increases were raised to 30 per cent., 50 per cent., and 60 per cent., respectively; and on May 1 of the present year the issue of return tickets was suspended. During the period from May 1, 1942 (the beginning of the financial year), to November 30, 1942, receipts reached £E6,779,000 (compared with £E5,416,000 in the corresponding period of 1941). Of this total, passenger receipts accounted for 40 per cent., goods receipts for 52 per cent., and sundry receipts 8 per cent. Working expenses in this same period of seven months were £E3,238,000 (against £E3,128,000 in 1941). The number of passenger tickets sold was 32,208,349 (against 27,853,201), and the tonnage of merchandise carried was 4,193,252 (against 3,754,302).

Pre-War Fares and Swiss Railway Stability

Despite the very considerable rise in the cost of raw materials and supplies, the Swiss railways have so far been charging pre-war fares and rates, and still issue special "holiday tickets" and—except in summer—cheap week-end tickets. The Swiss Federal Railways hoped that the situation would be improved materially by the much-needed financial reorganisation and the passage of a Traffic Bill, allotting well-defined categories of transport to rail and road respectively. The latter has, however, met with strenuous opposition from road transport circles, the Swiss Touring-Club and other bodies, and as a provisional measure the Federal Railways suggest that the Government should take over their deficit, which, as is not sufficiently known, is mainly the result of over-valuation of the property of the private railways on their nationalisation in 1902 and the high cost of modernising their inadequate equipment. Should this proposal not be accepted, a general increase in fares and rates, which is urgently pressed by the private railways, appears unavoidable. The new charges would be of the differential kind, with long-distance transport little affected.

Constant Time Warnings for Crossings

A difficulty associated with direct track circuit or treadle control of level-crossing warnings is that the length of time a warning is exhibited may vary appreciably, according to the speed of the approaching train. This is especially so in countries where long, heavy, freight trains and extra high-speed diesel or other services are both in use. If the arrangement is such that an adequate interval of warning is given when the high-speed train is nearing the crossing, the time is considerably prolonged when a slow movement is concerned and this has been found to have a tendency to encourage road users to disregard the warning and chance crossing over in time. Various designers

have accordingly produced devices intended to cause a warning to show for a pre-determined time before a train, whatever class it may be, reaches the crossing, with the object of impressing on the road user the fact that he has only so much time left in which to pass over or pull up. These arrangements naturally depend on some method of speed detection and have been successfully applied in France, Spain, America, and elsewhere.

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The Locomotive Considered as a Vehicle

With every increase in the number of axles in locomotives, riding qualities are liable to be adversely affected unless the closest attention be paid to the design considered purely as a vehicle. A degree of flexibility has to be provided by means of trucks or bogies and by axle side play or removal of wheel flanges. Maintenance of a satisfactory weight distribution is in itself something of a problem. An idea of all that is entailed in making a large 4-8-4 design roadworthy is given in an article on p. 161 of this issue; this describes some eight-axle locomotives recently built and placed in service on the Canadian National Railways. Much importance was attached to the provision of accurately controlled resistances to the lateral motion of trucks and axles; also to the limitation of reciprocating overbalance. The new locomotives are able to negotiate curves with safety at high speeds, maintenance of which with heavy loads has been facilitated by eliminating as far as possible the resistances to steam flow; also by ensuring an unrestricted path for air and products of combustion through the boiler. Not only is the performance expected to be ahead of that given by a similar earlier design but important fuel economies are thought to be realisable chiefly on account of the reduced rolling resistance.

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Making a Virtue of Necessity

Although engineers should normally avail themselves of the latest improvements in materials that chemists and metallurgists are able to provide, there is still a lot to be learned from applying older and simpler materials in the best possible way. Thus, in the effort to prolong the useful life of locomotive boilers, designers have from time to time made plates and tubes of specially resistant alloys, but it appears now that the most promising line of development lies in the direction of retaining familiar and well tried materials but improving the conditions under which they have to work. Recently-published American information goes to show that if adequate consideration be given to the question of water treatment the life of very ordinary boilers can be prolonged to equal the useful working life of the entire locomotive, which is stated in this instance to be about 20 years. The war has everywhere retarded the application of high-duty and special-purpose alloys in locomotive construction; all the wartime "austerity" designs are embodiments of only the most ordinary and readily obtainable materials; nevertheless they show a more enlightened adaptation of such materials when they are compared with similarly composed engines of several decades ago. This goes to prove that engineering progress is still possible even when a measure of retrogression is forced on the designer in certain directions.

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Railway Cats

In war conditions, pilferage assumes far greater importance than in more normal times, in view of the irreplaceability of many commodities. Considerable attention has been directed to the extension of theft while goods are in transit, but far less has been said about losses occasioned through vermin. Possibly, this is because the latter has been kept under control by the continued and faithful activities of railway cats, to which a tribute was paid recently in the *Canadian National Magazine* by Mr. George S. Towill. He pointed out that every railway building of importance on the C.N.R. system had its own cat, although how or when the custom arose, and the association was formed, it was unwise to conjecture, for it appeared to ante-date memory. It is easier to determine why the custom is not only perpetuated but also officially encouraged, for the simple explanation seems to be that we, who have succeeded in producing magnificent contrivances for the elimination of human life on a grand scale, have failed completely to invent a better mouse trap than a cat. Some of these cats are officially on the C.N.R. pay roll for board and lodging, but many others subsist by their skill and agility as mice catchers, and upon the charity of such railway workers as are that way inclined. Although relatively few have been adopted by the company, the total in service could probably be numbered in the thousands. It is frankly admitted officially that, for an expenditure of a few cents a day for milk, a cat saves the railway company many thousands of dollars from damage by rats and mice. Many of their idiosyncrasies are forgiven accordingly, and there is little doubt of the survival of the railway cat.

Railway and Civil Service Salaries

THE British Civil Service is justly admired throughout the world for the very high standard of integrity which it has maintained in our public life. We fully share this view and for this reason are anxious that the following comments should not be construed in any way as being a criticism of the civil service. Since the Government took control of the British railways at the outbreak of war, however, there has been a marked tendency in certain circles to secure that in such matters as war advances, holidays, etc., salaried railway staff shall not receive any better treatment than the civil service generally. If the basic conditions of service of railway salaried and civil service clerical, executive, and administrative staff were approximately equal such a course might doubtless be justified, but we suggest that the following particulars adequately disprove any suggestion that approximate equality exists.

We recognise, of course, that the educational standards required for entry into the civil service are substantially higher than those hitherto required for railway salaried staff generally and it is, therefore, not surprising that except for senior posts the general level of salaries payable in the civil service is higher. Exact comparisons are difficult as there are numerous grades of civil servants with a variety of scales, whereas railway salaries generally are fixed on one standard scale, but the following particulars give a broad indication of the comparative position.

The basic salary for railway clerical grades, termed class 5, is £80 a year at age 18, rising annually by £10 to £200 at age 31 and, as a war measure, to £210 at age 32. Approximately 50 per cent. of the railway salaried staff is in this category and the balance is graded into various groups styled respectively class 4, with maximum salary £230; class 3, maximum £260; class 2, maximum £300; class 1, maximum £350, and special class, members of which receive salaries of £360 a year and over. An additional £10 a year is added to the maximum generally in respect of staff working in the London area. It may be added that railway salaried staff generally are entitled to certain free and reduced fare travelling facilities for themselves and their families, the monetary equivalent of which obviously varies according to the extent to which they are utilised. For the purpose of this article they may perhaps be regarded as being worth £10 to £15 a year in normal circumstances.

It is necessary to bear in mind that promotion from class 5 to the higher classes is not automatic but is dependent on vacancies occurring in the higher classes; that the number of positions in each class decreases as the scale ascends and that there is little prospect of an appreciable proportion of the staff being able to reach the higher class positions. So far as staff in the special class is concerned, increases are not given at regular intervals, but are dependent on the responsibility of the position, merit, and other considerations.

On the other hand, the commencing salary of civil service clerical officers is £105, at age 18, rising annually by £10, £12, £15, and £18, to £350 a year, subject to an efficiency barrier at £250. The difference between the possibilities of advancement of this grade and that of railway salaried staff is evident. Higher clerical officers commence at £400 a year and rise by £18 annually to £525. What are termed executive officers commence at £150 at age 18/19, and rise by annual increments of £15 to £195 and then by £18 a year to £525. Higher executive officers and staff officers receive £550 and their salaries rise annually by £25 to £650, and there are higher posts of an "executive" type with salaries up to £1,500 or more.

"Administrative" staff, that is, those concerned with formation of policy, the co-ordination and improvement of Government machinery, and the general administration and control of the Departments of the public service, whose responsibilities are broadly managerial, commence at age 22-24 as Assistant Principals at £275, rise annually by £25 to £325 and then annually by £30 to £625. Principals receive £800 and rise by annual increments of £30 to £1,100; Assistant Secretaries receive £1,150 and rise by £50 annually to £1,500 and Principal Assistant Secretaries receive £1,700. On the other hand, with one exception, the maximum salary for any civil servant, viz., that of a Permanent Secretary of a major Department of State, is £3,000.

The salaries of divisional or district officers in the railway service vary according to the size or importance of the areas which they supervise and range from about £750 upwards, the maximum being probably £1,400 to £1,500. The salaries of the chief officers are, generally speaking, appreciably higher but vary widely according to their responsibilities, while those applicable to the highest executive positions are considerably in excess of the maximum civil service salaries.

There is also a wide discrepancy between the periods of annual leave which are allowed. Railway salaried staff in classes 3, 4, and 5 are entitled to 12 weekdays holiday annually; those in

classes 1 and 2 receive 15 weekdays, and those in special class 18 weekdays. Civil service clerical officers, however, are entitled to 24 working days; higher clerical and executive officers to 36 days, and higher executive and staff officers are entitled to the same period, rising to 48 days after 15 years' service. The administrative staff as a whole receive 36 working days leave annually during the first ten years of service, rising to 48 days thereafter. As a wartime measure, leave for both railway and civil service staff has been restricted to 12 working days, but an additional four odd days are generally allowable to civil servants.

So far as sick leave is concerned, established civil servants generally receive full pay for six months, followed by half-pay for six months. The payments made during any prolonged illness would be approximately the same as those made by two of the main line companies, although the actual rates and periods differ, but they are substantially better than on the other lines and L.P.T.B. where it is the normal practice to grant full-pay for two or three months, followed by half-pay for similar periods.

With regard to superannuation, civil servants have a decided advantage in that the Government bears the whole cost of the benefits and the staff are not called upon to contribute. The railway companies' superannuation funds, however, are contributory, and the staff pay, broadly speaking, 4 per cent. of their salaries. Civil servants receive an annual pension of $\frac{1}{80}$ th of their average salary for the last three years of service multiplied by the number of years served, the maximum benefit being $\frac{40}{80}$ ths. In addition, they receive for each year of service a lump sum of $\frac{3}{80}$ ths of the average salary of the last three years of service, subject to a maximum of $\frac{1}{4}$ times the average salary. While the railway companies' superannuation schemes vary in material respects, generally speaking the annual pension is slightly lower for railway staff than for civil servants, while on one line only is the maximum lump sum benefit $\frac{1}{4}$ times the retiring salary, the other companies' maximum being twelve months' salary. In addition, the dependants of civil servants who die whilst in the service receive, again on a non-contributory basis, a lump sum calculated on a similar basis to the capital sum paid on retirement, but with a minimum of one year's salary, this being substantially higher than the sum payable from railway superannuation funds.

In the matter of the war advance payable to staff earning over £500 per annum, the advantage lies with the railway staff as a war advance of £53 6s. 0d. is payable to staff receiving up to £1,000 a year, whereas the Treasury have only granted £25 per annum to non-industrial civil servants who receive between £500 and £850 a year.

It will thus be seen that the conditions of employment of railway and civil servants are so dissimilar as to afford little justification for any attempt being made to apply to railway staffs, as a wartime measure, any civil service conditions which happen not to be so favourable as railway conditions of employment.

Southern Railway Wartime Operating

THE statistics which we have published in recent issues have given a broad outline of the manner in which the British railways are coping with the extraordinary traffic and operational demands, arising from war conditions. In our July 2 issue some striking facts relating to movement on the L.M.S.R. were published, and similar statistics for the G.W.R. were given in our July 23 issue. L.N.E.R. wartime operation was the subject of an article in our July 30 issue. The statistics relating to the Southern Railway are equally impressive, more particularly when the essential differences between that railway and the other three main lines are taken into consideration.

On the Southern, engine miles (freight) for the year 1942 were 18,349,673; this was an increase of 1,050,021 miles, or 6 per cent., as compared with the previous year, and of no less than 3,419,084 miles, or 22.9 per cent., as compared with 1938. The total tonnage of freight originating on the Southern Railway (including the Somerset & Dorset Line) for 1942 was 10,694,423 tons, and approximately 42,000 wagons were used each week to deal with this traffic. Moreover, since the beginning of this year there has been a continued increase in freight traffic as is shown by the fact that in the first six months of 1943 the average weekly use of wagons has reached 46,270.

The improvement which has been made on the Southern Railway in the loading of wagons is evident from the fact that average load per wagon at starting point, which in 1938 was 4.95 tons, rose in 1942 to 5.11 tons, and has recently reached 5.14 tons. Loaded wagon miles worked by Southern Railway engines in 1942 totalled 192,328,728, which was 44,681,090 miles, or 30.26 per cent. more than pre-war.

Originating passenger journeys, which in pre-war were 360,795,107, declined to 230,220,993 in 1941, and rose to 292,575,449 last year. A rough computation of the estimated passenger miles conveyed in February of this year gives a figure of 498,961,000 or 63 per cent. more than in the corresponding period of 1939, from which figures the Continental and Channel Islands traffic had been excluded. On the same basis the passenger miles in respect of passenger and season ticket traffic wholly within the London Transport area were approximately 164,341,000, which was 15 per cent. less than in the similar period in 1939. Outside the London Transport area, therefore, the comparable figures were 334,620,000, which was 199 per cent. more than in February, 1939.

Loaded steam passenger engine mileage was 25,703,002 in 1938 and declined to 15,875,814 in 1941; there was a recovery to 16,370,559 last year. Likewise, loaded electric passenger train mileage which was 36,906,578 in 1938, and fell to 25,476,807 in 1941, rose to 26,489,211 in 1942.

Since the outbreak of war to the end of June, 1943, the Southern Railway has moved no fewer than 15,883 special troop trains, in which have been transported 4,616,726 troops. In addition to this, Service personnel carried on duty on ordinary services has totalled 3,296,037, so that the total number of Service personnel carried on duty is 7,912,763. During the same period 12,543 Service freight trains have been run. As might be expected, by reason of the geographical position of the Southern Railway, the busiest year for Service movements was 1940, when 4,516 Service freight trains were run.

To meet this additional wartime freight traffic the telephone control system on the Southern Railway has been gradually extended so that it is now possible for the Superintendent of Operation to be in immediate contact with his Divisional Officers and they in turn to be in constant touch with the depots and signal boxes. This has enabled this greatly increased wartime freight traffic to be dealt with without interfering with the large passenger movement (both Services and civilian) still passing.

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Similarities and Differences between Civil and Military Railways

THE article on military railway work which appeared in our June 18 issue prompts thoughts on the lines of the above title. To the uninitiated a "military" railway may appear to be a mysterious contraption which bears little relation to the very useful and well-known one of everyday life. There are others who look on a military railway as more or less of a toy for which any makeshift or expedient is quite suitable and who would dismiss the whole thing with the words "Oh, it's only a military railway!" Of course, neither of these is right, as is well known to a large number of civil railwaymen, a number which is increasing as the war period lengthens. Actually, a military railway is the result of efforts to adapt the most efficient and economical method of land transport to the needs of an army at war. This adaptation means the attainment of as near an approach to its high standards of construction, operation, and maintenance as the circumstances of war demand or will permit.

Speeds on military railways are always lower than on their civil counterparts. This is partly because of its higher percentage of freight traffic and partly because its individual users "do not pay" and therefore are not in a position to demand high speed even if they wanted it. Because of this and other purely military reasons it is possible, in a theatre of war, to relax or dispense with many of the legislative restrictions which are rightly imposed on civil railways in peacetime. One result of all this is the adoption of many distinctive methods of construction and operation, and the introduction of some new items of nomenclature directly connected with the army use of the railway.

It is very doubtful if active military operations will develop in the near future in any country which does not already possess a railway system. If the country is hostile, the complete operation of the railways may become a matter for the army. If the country is an ally or friendly, the civil railway staff will probably continue operation, and the army's part will be one of control and regulation only or merely co-operation. Additions and extensions may become necessary to cope with the full needs of the army, but it is doubtful if it will ever again be necessary, as it was in some cases in the last war, to construct a railway complete from a seaport which will serve as the sole means of support for an advancing army.

If a new line is required in peacetime it is usually because traffic is available or is about to become available in certain localities, and some organisation considers that it can be dealt with profitably by a new line. In a theatre of war a new line is constructed because additional traffic facilities are required

to further the plans of the army commander. Here we have both similarities and differences. In war the military situation is paramount and the railway must go where it will give the greatest help to the fighting forces. The route must fit in with the tactical situation. Often the line must go to definite places in advance of existing army control, which precludes any extended route reconnaissance. Such circumstances, plus the time factor, also preclude the use of precise methods of survey necessary to prepare the very accurate plans required for new civil railways and have resulted in many simplified methods.

Some of the significant differences, as far as English practice is concerned, are the use of 100-ft. chain instead of the Gunter's chain of 66 ft. with its 100 links of 7.92 in.; the designation of gradients by the percentage method, that is "x" feet per hundred, instead of one in "y" and of curves by degrees instead of by radius. These are logical changes because even with present English practice gradients must in fact be converted to percentages before they can be plotted on the longitudinal profile, and the radii of curves must be converted to degrees before gradients can be compensated for curvature and before the curves can be set out with a theodolite. Time is the all important factor in the construction of a military railway, so the surveyor must exercise mature judgment and the fruits of his experience in the judicious use of curvature to reduce earthwork and keep gradients reasonable without undue increase in the length of the line.

In the actual construction of the line mechanical aids are used on the earthwork as much as possible. Time will not permit, however, of the requisite period so necessary for complete settlement of the earthwork before the track is laid. This, of course, calls for increased maintenance during the early stages of the line's use. Drainage is just as important as on a civil railway or even more so. An outstanding feature is the greater use of level crossings with consequent simplification of the work in all stages and the saving of much time, but good "sight" is very necessary from both railway and road approaches. Bridges are standardised to a great extent with consequent saving of time and material (partly locked up in storage) at all stages from manufacture to erection.

The standard military track uses a flat-bottom rail laid on cast-iron bearing plates and secured by steel dog spikes, although coach screws are used for the special fittings in turnouts. The use of the expression "turnouts" is encouraged instead of "points and crossings." Great stress is laid on endeavouring to plan all layouts so as to permit of the use of simple turnouts with one road straight. Every endeavour is made to ballast all track but the lack of the best ballast or any at all is not allowed to delay the opening of a line. It may surprise many to know that the best natural material on which to build a railway without ballast is sand provided it can be prevented from blowing away from banks and also prevented from filling in cuttings. Experience during the last war showed that this can be done. The laying of track in the army has been reduced to a drill almost as much as have other military evolutions which has done much to speed up the work.

Station layouts call for little comment from a construction point of view except to say that the French word "triage" has been borrowed to describe any group of sidings irrespective of their use. Literally "triage" means "sorting."

The operating aims of a military railway may be said to be the same as of a civil one, namely, to run its trains with safety, despatch, regularity, and economy. It is considered that safety on a military railway is of even more importance than it is on a civil one. The interruption of a civil railway in peacetime can hardly be said to cause more than inconvenience to the public. Interruption or delay on a military railway in a theatre of operations may lead to a disaster due to the non-arrival of urgently needed personnel, equipment, or stores during or immediately before a battle.

The most certain way of ensuring this operating safety is by the retention of the absolute-block system. It is now an accepted principle that a military railway must have its own telephone and telegraph facilities from the very beginning. This enables an effective block system to be worked by means of telephone and ticket. If the rules for this are simple it will be practically foolproof, as was proved in the last war. But it would not be retained any longer than circumstances demanded. Electrical token instruments for single line and normal block instruments for double line would be installed as soon as available. It is of interest to note that during the last war in one area where telephone and ticket was in use on a single line for quite a long period no case occurred of conflicting orders being issued.

Station working without the usual peacetime equipment shows almost the greatest departure from normal civil practice. Initially all points will be operated by hand levers of the yard type. Signals to drivers will have to be given by flags and hand lamps; those in use at the outer points at the ends of the stations become crude substitutes for home and starting signals. As a precaution against over-running, drivers when approaching a station are not allowed to pass a post sited at a safe distance

outside until the above-noted "home signal" gives permission to draw into the station. This post functions as a sort of outer home signal. At a fixed distance beyond this a large warning board gives notice that the station is being approached and that it may be necessary to stop before entering the station, thereby fulfilling one of the functions of a distant signal. The two extreme ends of the station where the "home" and "starting signal" indications are given will be in telephonic communication with the station office which deals with the block working in the adjacent sections thereby ensuring co-ordination of all the stations working. These somewhat crude arrangements, while quite effective when nothing else is available, will always be replaced by better equipment as and when it becomes available. Almost every type of equipment increasing progressively in quality from almost nothing to a fully interlocked signal cabin might be seen at different parts of a military railway at the same time.

Superimposed on this station and section working there is a "control" which functions in the same way as the main-line control of a British railway. As far as the actual movements of trains are concerned, "control" gives no orders except to decide precedence in cases where two trains are ready to use the same section in either the same or contrary directions. This sort of control is necessary in order to ensure the best and greatest possible use of the available line capacity. Rolling stock distribution is one of the major functions of the control amongst a host of others. Initially it may be necessary to work the control with ordinary telephones and a code ringing system but a selective ringing system would be installed as soon as possible.

A military railway is envisaged normally as starting from a seaport where a sufficient area, known as a "Reserved Transportation Area," is placed under the sole control of the Transportation Service. Its receiving, despatching, and internal distribution work is centralised in a triage called the "Dock Sorting Sidings." From here newly arrived stores and equipment are distributed to the "Base Depots" of the various Services which supply the needs of the army. Stores as needed and demanded are loaded in the depots for despatch forward. These are collected at a large marshalling yard which is known as the "Base Regulating Station." Here train loads are made up for the forward journey. Particular attention has to be paid to the consignments of supplies (foodstuffs, etc.) and other stores which are a daily necessity so that they may reach the troops with regularity each day irrespective of forward moves of the army necessitating longer train journeys. Other stores frequently need to have their movements altered to conform to changing situations. Hence the use of the word "regulating." All commodities are sent to stations conveniently located for taking over by the army's road transport, having due regard to possible enemy action. These stations are known as "railheads" and would be designated as "Supply Railhead," etc., depending on the commodity handled. The railway from the base to railheads forms part of the line of communications. If the line of communications is long, an "Advanced Regulating Station" may become necessary to facilitate control and to ensure more certainty in delivery times. A similar reason may counsel the establishment of "Advanced Depots" of some or all commodities thus forming an "Advanced Base." Traffic from the base to the railheads is "Up" traffic; that in the reverse direction is "Down" traffic.

From the above it might be concluded, quite justifiably, that there is as much if not more difference between the busy part of a main-line British railway and one of its little used country branches as there is between the civil railway and its poor and sometimes half-starved relation, the military railway.

YELLOW REPLACING RED-GREEN ON C. & N.W.R.—The announcement in the American technical press that the Chicago & North Western Railway is changing the approach (caution) indication of its automatic signals on certain sections from red-green to yellow is a reminder of the progressive policy pursued by this railway in earlier years. Originally the white light was used everywhere in the U.S.A. as a clear signal, with green for caution or, as it is now termed there, approach. Distant signals accordingly showed a green light in the "on" position, never red as in Great Britain. With three position train-order, and later automatic, signals, red, green, and white corresponded to stop, caution, and proceed. In 1889, however, the C. & N.W.R., advised by its then Principal Assistant Engineer, Mr. E. C. Carter, adopted the green light for clear and for the "on" position of its distant signals a red and a green light side by side, obtained from a reflecting lantern similar to that already much used in France. It retained this working with its 3-position semaphores, using red-green for the 45 deg. position. The spectacle plate carried no glasses but merely covered and uncovered the two lights as required. With the adoption of colour-lights, the C. & N.W.R. introduced yellow, first tried in the U.S.A. about 1900, we believe.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Long Southern Railway Trains

12, St. John's Park,
S.E.3. July 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read with interest the references in your columns, and in *The Railway Magazine*, to the mid-week fusion of the 10.50 and 10.59 a.m. trains from Waterloo to Exeter. The 10.35 a.m. up from Exeter to London, with 16 vehicles throughout, is really the harder proposition (though one would imagine that the division of this train on the busy up main line at Clapham Junction must reduce the operating value of the scheme), and it is surprising to see a heavily-loaded restaurant car train, such as the 10.50, in one portion, while the 12.50 from Waterloo is regularly worked in duplicate west of Salisbury (and with a total load of only 15 vehicles on the Portsmouth and London portions from Templecombe) and the 2.50 has to be relieved by an additional train at 2.54 from Waterloo to Templecombe. Naturally, the "Channel Packets" did not appear to have the least difficulty in maintaining (and, when necessary, regaining) time with the 16-vehicle formations—515 tons tare going down and 514 and 520 tons coming up—but it is unfortunate, from the passengers' standpoint, that the 10.50 is reduced to 14 vehicles (really only 13 and a restaurant car) at Salisbury.

But is there really any material gain, as regards line occupation, to be derived from the scheme? The 16-vehicle formation, particularly coming "up," is a very awkward platform proposition (though there was no great difficulty in the starting of the 16-vehicle 10.50 from No. 11 platform at Waterloo) and in spite of the care taken by the train staff to avoid drawing-up at stations, we had to spend 8½ min. at Sidmouth Junction going down, and from 7½ to 9 min. at various stops coming up. A mid-week cancellation can hardly be of great value from the standpoint of engine-saving, and scrutiny of the timetable suggests that two trains of size more suitable to the station capacities might be more easily worked.

Yours faithfully,
R. E. CHARLEWOOD

Transport and Its Track

Walkern Old Rectory, Nr. Stevenage,
Herts. July 30

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Referring to the article "Transport and Its Track" in your issue of July 23, you state in paragraph 6 that of the £80 million paid in taxation by motor-vehicle users, about £20 million was paid by public road transport operators, and that this figure represents only about 11-12 per cent. of their gross receipts. This, of course, implies that the gross receipts of such operators amounted, in 1938, to some £174 million.

Would you be good enough to confirm that this is a correct interpretation of this paragraph, and, if so, to state:

1. Whether by "public (road) transport operators" you mean professional operators of goods carrying commercial vehicles, that is, "A" licensees only?
2. The sources of information upon which the figures are based?

A further point, which you have not mentioned, is that the railways have to bear the whole cost of signalling and controlling the movement of their trains, whereas in the case of road transport the expenditure on policing, traffic lights, etc., is borne by the general public through local rates. If this be true, it strengthens the case for additional taxation of road vehicles, as put forward in your article, though obviously it would be unfair to take the comparison too far, as the policing, etc., of the roads is largely necessary because of their use by other than motor-users.

The whole article is of great interest in connection with post-war transport development, and it is therefore important that there should be no uncertainty as to its implications.

Yours faithfully,
R. O. SQUAIREY

[By public road transport operators is meant passenger and goods commercial road transport operators carrying for hire, and we estimate that of the £80 million contributed in motor vehicle and fuel duties in 1938, about £20 million came from this source. We also estimate that these public road transport operators contribute about 11-12 per cent. of their gross receipts in paying these licence and fuel duties. The evidence for the estimates is various. One guide to the £20 million is in the

appendices to the Salter Report and allowing for changes since 1932; another is the factual information published by the road interests before the war. Independent calculations were made and when put together pointed to £20 million as being about the figure. The estimate of 11-12 per cent. is arrived at by testing different types of organisation. Two that have been published already may be quoted. In its 1937-38 report the L.P.T.B. stated that the amount it paid in licence and fuel duties was £1,955,000, which is 6 per cent. of its gross receipts from all sources. On the other hand, the comparable figure for the road transport services operated by the railways in 1938 was 13 per cent. Taking an average from all the sources available the figure appeared to range from 11 to 12 per cent. The estimates in both cases were made conservatively. We agree that signalling is an additional item to have in mind, but against this the road operator has counter items, such as insurance. It was our endeavour throughout the article to deal with the subject moderately and without straining points.—Ed. R.G.]

The Passenger Never Forgets

390, Wakefield Road,
Huddersfield. August 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I write not as one who bears a grudge against the railways but as one who grieves to see them act as if indifferent to their fate. It is true that many wartime passengers are receiving a bad impression of rail travel and in so far as this is due to unavoidable overcrowding that must be considered as unfortunate, but inevitable. It is true, also, that many railwaymen are compelled to work long and hard by reason of heavy traffic and it is on their behalf that many peacetime refinements in rail travel have had to be discontinued. Unhappily, this has provided an excuse for a slovenly fall below normal standards in cases where there is no justification for it.

Although there is still paper to spare for propaganda posters, whose value must be very small, there is a scarcity of displayed timetables. The circulating area of the rebuilt Wellington Station at Leeds (the "new" part of City Station) presents an air of dignified magnificence to one who views it casually. He may inspect showcase models of A.R.P. equipment and of service uniforms, he may pop in for a bath or a cup of tea, he may buy a platform ticket (but not after 7 p.m.) and he may inspect the list of train departure times, but he will look in vain for a timetable. The nearest one is attached obscurely to the refreshment room well out of sight in the faded "New" Station.

At Crewe (Crewe mind you!) it was impossible last Whitsun Tuesday to find out on the station when one could expect to reach Huddersfield (50 miles away) by train because, although there were many unoccupied display boards, there was no timetable for the Yorkshire district. A platform inspector, in explanation, said to me "We had one, but somebody won it." The passenger was required to climb the steps and to leave the station proper, still not to find a timetable, but to pester the unfortunate officials in the enquiry office. I noticed on the same day, by contrast, the wayside station at Cheadle Hulme flaunted a timetable for the Carlisle, Whitehaven, and Barrow district.

Not long ago, the time of the last train from Bradford to Huddersfield was changed from 10 p.m. to 9.55 p.m. but the alteration is not noted on any displayed timetable in the Huddersfield district, although it is perfectly easy to do so.

A passenger was refused admittance to a platform until a ticket had been purchased and assurance was given that there was ample time for the purpose. When the passenger returned, the desired train had gone (Bradford Exchange 7.8 a.m., July 12).

A main-line train running late, nevertheless entered a station whilst a branch-line train (connecting with it according to the timetable) was standing at an adjoining platform. By special efforts on the part of the stationmaster the branch-line train was got away before the other one stopped, although a telephone message to the station had made it clear that there were passengers desiring to make the connection (Ruabon 5.10 a.m., July 19, 1943). Next branch train 7.25 p.m.

Trains are started at times determined in the most casual manner. I record these few incidents because the reputation of the railways is being destroyed by incompetent minor officials and the managements will never hear how it is done unless passengers tell them.

Yours faithfully,
W. A. TUPLIN

[In general, the exhibition of timetables is arranged at places where it is considered that they are most frequently consulted by the public. The greatest care is exercised in their posting, but because of the need for paper economy the number of sheet timetables has been curtailed.—Ed. R.G.]

The Scrap Heap

The Czechoslovak Army band of 38 performers played to London Transport bus overhaul workers during their lunch time in July 27

It is said that if a locomotive travelling at 60 miles an hour were suddenly stopped dead, it would require the exertion of a power several times the weight of the engine itself to lift it from the rails, on account of the electrical attraction. This is a theory widespread among railway engineers. Of course, it has never been practically put to the test.—*From the Railway Supplement to "The Weekly News" (Dundee), of November 5, 1898.*

RAILWAY MISSIONER A WARTHOG

During the last week in July a meeting of the South African Church Railway Mission was held in Fulham Palace, and many interesting stories of the mission's activities were told. The mission area covers between 500 and 600 miles of line, and the missioner tries to reach every ganger once a month, even if it is only to throw something for him to read out of the train as it passes. It appears that when the Bishop of Northern Rhodesia is called by the Africans "an indomitable warthog" it does not cast any reflection on his physiognomy but is paying him a compliment by meaning he possesses great courage and tenacity of purpose.

So we came to Marylebone station . . . The ticket collector, who was probably a detective in disguise, asked our names and checked them on a list, and we passed on to the platform where a long train was drawn up. As I walked towards it, a sleeping-car attendant wearing a snuff brown livery greeted me by name . . . I followed him into the car, thinking how odd life is, for those who travel without

excited crowd of people laughing, waving, and pointing to someone on the other side . . . Winston Churchill was standing on the platform, wearing a blue suit and smoking a cigar.—*Extracts from "Atlantic Meeting," by H. V. Morton.*

SMUGGLED GOODS UNDER COACHES

Customs officers at Goragwood when examining a Belfast-Dublin train on the night of August 3 found several bags of nails and other dutiable goods suspended by strong wire under the coaches.

Salvaged material is being converted to other uses very successfully by the London Passenger Transport Board. A noteworthy instance is the making of brushes for workshop use from horsehair recovered from obsolete blinds removed from former Metropolitan Line rolling stock. The amount of horsehair available is considered sufficient to ensure a supply of brushes for some years. The blinds, which were woven from linen and horsehair, are cut into strips of selected widths to form varying sizes of brush. The linen is pulled back for about half the width, leaving the horsehair to form bristles. The strip is then rolled and fastened to a handle, itself made of scrap metal. The result is a strong, serviceable brush.

LOCOMOTIVE RUNS LUMBER PLANT

The National Wood Products Company, whose lumber plant adjoins the Illinois Central System at Jacksonville, Mississippi, recently suffered a fire which destroyed the boiler room and machine shop, and did damage estimated at \$1,000,000. An Illinois Central representative immediately called on the manager of the plant, to offer the services of the railway to meet the emergency; he found that the chief need was for facilities for drying the lumber, and that, if the dry kilns could be repaired, the plant could be put into operation again.

The loan of a locomotive to supply steam was suggested, and less than 36 hr. after the fire, engine No. 201 had been delivered to the lumber company, together with a bogie-wagon load of coal; the locomotive was coupled to the dry kilns, enabling the drying of lumber to be recommenced. But for this prompt assistance, the lumber plant might have been shut down for an indefinite period.

With the May issue, *The Official Railway Guide*, the United States counterpart of

Bradshaw, completed 75 years of continuous service to the railways and the general public. The first issue, published in June, 1868, was one of 140 pages; the present-day issues are massive volumes of 1,540 pages, each 10 in. x 7 in., and are a mine of information concerning the railways of the United States, Canada, and Mexico. Train services are shown for all the railways, numbering many hundreds, as well as details of their administrative staffs; in many cases, maps of the systems and connections are also given. The com-



Photo]

[R. M. Kidner

Old S.E. & C.R. notice at approach to a footbridge over the main line near Orpington electric train sheds

positions of the principal trains are set out, to assist passengers in making reservations. Although many minor stations and halts are omitted from the tables, a complete list of these is included in the index. Details of steamship and airline services are included. The price of the guide is \$2.00 monthly.

SANTA FE WAGES AND SAVINGS

Santa Fe railway employees collected a total of \$43,103,223.43 in pay checks during 1942, according to an article in the May issue of the *Santa Fe Magazine*. Wages paid employees constitute the largest single expense of the railway. There are 55,000 employees on the pay-roll working in the thirteen states in which the company operates. During the twelve months of 1942, they were paid a total of \$128,745,742.43. A total of 33,000 war bonds is bought every thirty days, with a maturity value of \$949,525—almost a million dollars a month. Handling of employee war bond investments through pay-roll deductions cost \$6,000 per month. One employee used 60 per cent of his last year's salary for war bonds; several made single purchases of \$5,000; a big majority spend 10 per cent, and more of their monthly earnings for war bonds.

London Transport posters, for which there is still a fair demand, despite the cessation of much peacetime advertising, are being printed on the backs of old ones, whenever possible.

IS YOUR JOURNEY NECESSARY?

Is your journey necessary?
A slogan much in talk—
Has found expression everywhere
North, south, east, west, of York.
On station walls and notice-boards
It's prominently billed,
And notwithstanding all of this
The trains are over-filled!
Yes! packed, from engine to guard's van,
With Servicemen and kit,
The corridors are crowded
There is no room to sit.
Most people need a holiday—
Their best place is at home—
Then leave the trains for Servicemen,
Who want to visit Rome.
In fact, they're on their journey now,
Intent to reach—Berlin;
So let the troops keep travelling,
They have the war to win.

W. E. N.



Mr. F. C. A. Coventry alongside the driver of the first G.W.R. motorbus, which inaugurated the Helston-Lizard service on August 17, 1903. (See pp. 149 and 158)

railway tickets experience either gaol or a regal reception.

But the sleeping-cars had told me this: that we were not going to Dover, Harwich, Portsmouth, Fishguard, or indeed to any port in England or Wales, but to the north of Scotland, for that is the only journey in Great Britain, if you leave London soon after noon, which justifies a sleeper. After lunch I returned to my sleeper . . . I noticed that the train was slowing down to a stop. My window faced the up-rails of a small countr station on which I saw an

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

CANADA

C.P.R. Automatic Signalling

Contracts have been placed by the Canadian Pacific Railway for the equipment of two extensive stretches of main line with automatic block-signalling. The first, for which materials will be supplied by the Union Switch & Signal Company, is over 129 miles of single track from White River to Chapleau, Ontario, and will require 268 high and dwarf searchlight signals with relays, rectifiers, switch circuit-controllers, and other items. The second, 119 miles in length, is from White River to Schreiber, Ontario, and forms the Heron Bay Subdivision; this will be equipped by the General Railway Signal Company, and will require 251 high and dwarf searchlight signals, 609 relays, 305 rectifiers, and 70 switch circuit-controllers. In both cases, the signals are being located in such positions as would require no change if centralised traffic-control should be added. The field installations will be carried out by the company's staff.

Automatic Signals Facilitate War Traffic

Another example of how automatic signals can facilitate war traffic is provided by the decision of the Canadian Pacific Railway to instal them on 250 miles of the Schreiber Division of the Algoma district. This section is single line and forms a bottleneck. A special study was made of the territory in connection with the urgent necessity of moving eastbound wartime traffic out of Fort William. The limiting factors were the Heron Bay and White River sub-divisions, the former on account of its steep grades and low tonnage rating, and the latter because on it the maximum interference with freight train movements from passenger trains is experienced. It is expected that the work of installing the signals between Schreiber and Chapleau, through White River, will be completed by the end of the year. They will be 3-aspect colour-lights, controlled by "absolute-permissive" circuits, now widely adopted, spaced on the average $\frac{1}{4}$ mile apart. This signalling will enable to be released traffic accumulated at Fort William because it is beyond the present handling capacity of the Schreiber Division, and will increase the safety of working, especially in bad weather.

Box-Baggage Cars

The box-baggage cars ordered for the Canadian National Railways to cope with urgent wartime shipments are being requisitioned by the postal authorities as quickly as they reach Montreal to carry mail which must be transported on fast schedule. These vehicles load approximately a thousand bags of mail, holding more than 2,500,000 letters. Another service for these cars is their inclusion in troop trains to carry luggage or supplies. A fleet of 50 such cars from the Canadian Car & Foundry Company's Montreal plant is being delivered. The cars are interchangeable for freight or passenger train service, and the design embodies many new features, including a braking arrangement now being used for the first time on any railway in America.

They have a box car exterior, but improvements have been included in their construction. The colour scheme harmonises with standard C.N.R. passenger equipment—green for the sides; black ends,

roof, underframe, and bogies; and yellow-gold lettering. The two bogies are heavier than the ordinary box car type, to give smoother riding. They are equipped with the latest type Westinghouse brake equipment which operates to suit passenger or freight service. A door at each end of the car, with a small platform over the coupler, makes for easy access when the cars are in passenger trains. Electric lighting takes current from an adjoining passenger carriage when necessary. These cars are also equipped with passenger-type drawgear, and steel-tyred wheels for fast service. The vehicles are of all steel construction and of 40-ton capacity. The principal interior dimensions are: length, 40 ft. 6 in.; width, 9 ft. 2 in.; height, 10 ft. They have 3,712 cu. ft. capacity.

UNITED STATES

Pennsylvania Derailment

One of the worst accidents in the United States for some time took place at Delair, New Jersey, six miles east of Camden (Philadelphia) on May 23, and resulted in the deaths of twelve passengers and two employees, and in injuries to about 100 persons. The train concerned was the 9 p.m. from Atlantic City to New York. To accommodate the maximum number of passengers the former all-steel Pullmans of which it was composed have been fitted as a war emergency measure with wooden slatted seats holding five passengers abreast; there were 15 of these vehicles in the train, which carried 1,281 passengers, and was hauled by a Pacific locomotive of the "K4s" type. At Delair Junction the New York line diverges from the Philadelphia line on a curve of 14 deg. (6 $\frac{1}{2}$ ch.) radius, which has a speed restriction of 15 m.p.h., and it was here that the locomotive and the first seven vehicles of the train were derailed. The first four, in which all the fatalities occurred, piled up with the engine at the foot of a low embankment, and the first carriage overrode the locomotive. The track and equipment were all in good order, and it has been established that the derailment was due to excessive speed.

Centralised Traffic-Control

The Denver & Salt Lake Railway (a subsidiary of the Denver & Rio Grande Western Railroad), which by ownership of the Moffat Tunnel and the Dotsero cut-off provides the shortest route between Denver and Salt Lake City, is following the lead of the parent company by installing A.P.B. signalling with coded track-circuits over 27 miles of single track between Bond and East Kremmling, Colorado. The layouts are being so arranged that centralised traffic-control may be added at a later date without changing the relays. The work is being carried out by the General Railway Signal Company.

The General Railway Signal Company has received an order from the Missouri Pacific Railroad for a centralised traffic-control installation from Newport to Minturn, Arkansas, and for an extension of the Poplar Bluff-Knobel centralised traffic-control installation from Knobel to Murta, Arkansas. The former will cover 26 miles of single track and will be operated from a control machine at Newport; the latter covers 20 miles of single track, and will be controlled from a three-panel extension of the control machine at Poplar Bluff. Both control machines are to be provided with

continuous track indications; and with levers or controlling signals, power-operated switches, and outlying electric switch locks throughout the territory concerned. Equipment also has been ordered for modernisation of the signalling in the vicinity of Hoxie, in the 43 miles between the two c.t.c. installations mentioned, both of which are on the main line from St. Louis to Texarcana, Fort Worth, Dallas, and the south.

Brake-Test Neglect

A collision which occurred on April 4 at Memphis, Tennessee, resulting in the death of one passenger and in injury to 63 persons, is the subject of a report by the Interstate Commerce Commission, issued recently, and is attributed to a failure to test the air-brake system of the colliding train, in accordance with the rules. The latter was Extra 1204 East of the Missouri Pacific Railroad, composed of locomotive, auxiliary water wagon, 54 bogie freight-wagons, and a caboose, which, when travelling at 12 m.p.h., struck the rear coach of Illinois Central passenger train No. 33 southbound, consisting of locomotive, mail-express van, and three coaches, at a right-angled level crossing south of Memphis Grand Central Station. The coach was pushed off the track to an angle of 45 deg., but the freight train did not stop until the engine was 768 ft. beyond the crossing. The rules are that every train must stop clear of the crossing, and proceed only when a "proceed" indication is given by colour-light signal, operated by a switch-tender at the crossing; the passenger train was proceeding correctly in accordance with this rule. The freight train had stopped for over 30 min. at a point 2,000 ft. west of the crossing, where the pilot, which had assisted it across the Mississippi bridge, had been detached. The pilot had been controlling the brakes; and the driver of the train engine maintained that, after the former had been detached, he had placed the doubling-heading cock in open position; but it is clear that he had failed to do so, for when he had observed the stop signal at a point 900 ft. from the crossing, and had moved the automatic valve to the emergency position, the brakes functioned on the engine only, locking the wheels. The momentum of the train pushed the engine over the crossing, and for 768 ft. beyond. The crew of the freight train made the excuse that it was to avoid delay that they had failed to make a brake test, but the report points out that such a test would have prevented the collision.

DENMARK

The New Queen Alexandrine Bridge

The Dronning Alexandrines Bro, or Queen Alexandrine bridge, the new road bridge connecting Zealand with Moen Island (to the south-east), was opened to traffic on May 30. The bridge is of reinforced concrete and steel, and its length is 2,440 ft., exclusive of the approaches, each of which is 656 ft. long. The cost of the bridge was about 6,000,000 Kroner. Its designer, Prof. Axel Engelund, is credited with preparing schemes for various other road bridges intended to connect the Danish islands.

Long Bridges

The Queen Alexandrine bridge is the third longest in Denmark. The first in order of length is the 10,496-ft. Storstrøm rail and road bridge between Zealand and Falster, built at a cost of Danish Kroner 36,000,000 and opened in 1937. A general description of this bridge was published in

The Railway Gazette for October 22, 1937, page 691.

The second longest bridge is that which connects Jutland with Funen (to the east), spanning the Little Belt. It was opened in 1935. This bridge, which extends between Frederica and Middelfart, was described in our issue of May 24, 1935, page 1028.

The fourth longest bridge is the Odde-sund, with a length of 1,548 ft. This bridge, opened in May, 1938, spans the Limfjord. It was described in *The Railway Gazette* of September 3, 1937, page 394.

The fifth longest bridge is the one which crosses the same fjord at Aalborg, and is usually called the Limfjord Bridge. It was completed in 1938, and is 1,325 ft. long.

Projected Rail and Road Bridges

Among several bridge projects being discussed, the most important concerns a bridge connecting Zealand with Funen, between Korsør and Nyborg. The cost of this bridge is estimated at 1,000,000,000 Kroner, and it is expected that the work would take eight years to complete.

A bridge, or alternatively a tunnel, is envisaged between Denmark and Sweden across the Øresund. Detailed plans in connection with these projects are said to have been completed.

Suspended Work

Work on the railway bridge across the Guldborgsund, between the Lolland and Falster, for the new direct main-line railway from Rødby to Nykøbing, has been suspended for the duration of the war, as also has work on the railway itself. The length of the bridge was to have been 951 ft. Particulars concerning this new railway were published in *The Railway Gazette* for January 16, 1942, page 107.

CEYLON

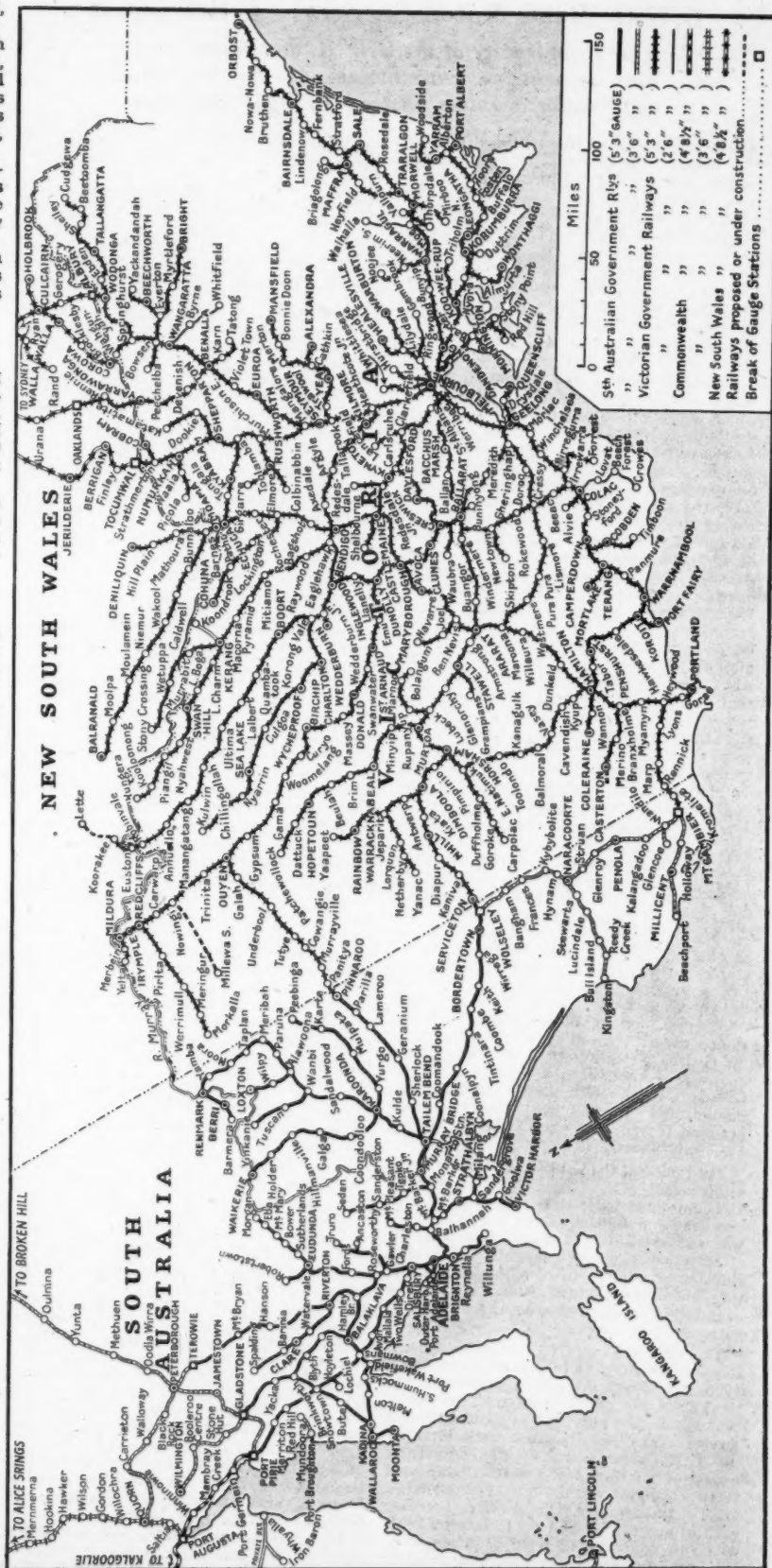
Sunday Train Services

Sunday train services, which, as recorded in our May 28 issue, were discontinued on January 24, have been restored. The restoration is included in the new timetable introduced recently. To cater for city workers travelling, trains are now made up of 16, instead of 11, coaches. This has necessitated the building of temporary platform extensions at some stations.

Improved Goods Service

The introduction of the new passenger timetable has been hailed as an opportunity for improving the goods service. Additional goods trains are now in regular operation, and it is expected that this will lead to the regular and speedy despatch of goods once the new system is in full operation. The new organisation has done away, to a large extent, with the necessity for running special goods trains, which had become a feature in recent months. In the past, when mixed trains were operated, the necessity for additional coaches often meant leaving goods wagons behind. It is now expected that passenger and goods traffic will be operated independently of each other.

The map reproduced on this page shows the broad-gauge group of railways in Victoria and the adjacent portion of South Australia



G.W.R. Road Motor Services: A Retrospect

The perspicacity of the G.W.R. directorate and management in introducing, 40 years ago, road motor services instead of light railways

AT the beginning of this century, the only British railway company with specific parliamentary powers to operate road transport services was the Furness Railway which, by an Act of August 1, 1899, was enabled to work horse coaches in connection with, or in extension of, its railway system. The Great Western Railway, which was a pioneer in the use of the commercial motor, then being introduced, was without specific powers, and in fact never possessed them until it inherited some from acquired undertakings at the time of grouping.

Curiously enough, the very first motor-buses used by the G.W.R. on the service which entitles it to pioneer honours among the large railways as a motorbus operator, were taken over from the road associate of a minor railway. The story began with Sir George Newnes's narrow-gauge enterprise, the Lynton & Barnstaple Railway, and its efforts to provide easy communication between Lynton and Ilfracombe. At first, horse-drawn coaches maintained a service between Ilfracombe and Blackmoor Station on the narrow-gauge railway, but early in 1903 Sir George Newnes, with characteristic enterprise, decided to work motors. He bought two 22-seat 16 h.p. Milnes-Daimler motor waggonettes and formed a company which inaugurated the service in June of that year. A contemporary London newspaper comment said: "This is the first time that a railway has started a motor-car service to collect and distribute passenger traffic, and it may be hoped that the example thus set may be followed by some of the great companies."

It so chanced that at that period there was an agitation for the construction of a light railway between Helston and the Lizard, which was estimated to cost £85,000. The G.W.R. was unwilling to expend such a large sum of money for this purpose, and considered the possibilities of a road motor service. Meanwhile, the Lynton & Barnstaple Railway found its road motor undertaking unpopular in a district where horse-drawn coaches were at the height of their popularity, and, after difficulties with the Police about "speeding above 8 m.p.h." Sir George Newnes retired in disgust, and disposed of his two Milnes-Daimlers to the G.W.R. It was with these that the latter inaugurated its famous pioneer route between Helston and the Lizard on August 17, 1903—exactly 40 years ago.

The policy of the G.W.R. with these early services was to use them strictly as feeders, and sometimes (as with the Lizard route) to test traffic potentialities of a route which was suggested for railway extension. In at least one case, such operations revealed sufficient traffic to justify building a railway, but in many other instances, hundreds of thousands of pounds of light railway construction were saved.

The Lizard service was suspended for a short time, from October, 1904, to April, 1905, in consequence of a dispute with the local authority about damage to the roads. It is not without interest to recall that this service, and others begun a little later by the G.W.R., were nearly abandoned by reason of the high cost and unreliability of tyres; the cost worked out at about 3d. a mile. Incidentally, this service, together with others established up to late in 1904, was run contrary to legal requirements. While the Locomotives on Highways Act of 1896 had done away with the man carrying

a red flag, the Act applied only to vehicles under 3 tons in weight, and, as manufacturers could not produce public service vehicles to comply with this requirement, advantage was taken of the fact that no regulations were in existence showing what should or should not be included in the weight of the vehicle. The obstacle was overcome by removing items of equipment from the cars and painting the chassis 2 tons 19 cwt. The regulations were modified in 1904 to the extent of permitting the use of motor vehicles up to 5 tons in weight without a pilot.

Although the pioneer service did not prove a paying proposition in its early stages, results were sufficiently promising to justify the commencement of another route, and that between Penzance, Newlyn, and Marazion (3 miles) was opened on October 31, 1903. The results of these two services led to the placing of an order for 30 Milnes-Daimler vehicles in 1904.

The first G.W.R. bus service in Devon was that between Modbury and Yealmpton (12 miles) begun on May 2, 1904. Sir Tristram Eve and a local company also ran a car on the route, and both this and the G.W.R. bus often failed—sometimes at the same time. The railway company eventually took over the locally-owned service, and the transaction is of interest as being probably the first railway acquisition of a motor service. Another very well-known and old-established G.W.R. route in the neighbourhood of Plymouth was that between Saltash and Callington (9½ miles) which began on June 1, 1904.

For a variety of reasons some of the early G.W.R. bus services were discontinued and between 1903 and 1909 no fewer than 17 services were tried and given up because the traffic offering proved insufficient to support them. However, the fleet of buses grew steadily, reaching 34 on December 31, 1904; 56 on June 30, 1905; 72 on December 31, 1905; and 80 on December 31, 1906. The early choice of Milnes-Daimlers proved as satisfactory to the G.W.R. as it did to the Vanguard company in London, and of the total of 80 above mentioned no fewer than 67 were of this make. By June, 1907, G.W.R. buses had run upwards of 1,600,000 miles and carried more than 3,500,000 passengers. In January, 1908, the G.W.R. bought 14 Milnes-Daimler double-deck buses from the Associated Omnibus Co. Ltd. of London and its fleet then totalled about 106 Milnes-Daimlers, with 7 of other makes. By 1911 some 31 G.W.R. services were working.

The boom in motor vehicles which began about 1905 made it increasingly difficult to obtain new buses of proved value, and at one time the G.W.R. was able to buy only a few of the Milnes-Daimler chassis, which it regarded as its standard, as the requirements of the London market absorbed nearly all the output of the manufacturer, and thus the G.W.R. found it necessary to introduce such other types of vehicle as the Durkopp, Wolseley, and Clarkson steam car, none of which was entirely satisfactory for the type of service required. In fact, in 1906, the G.W.R. seriously entertained the idea of designing and building its own buses, a step which had been taken by the Great Eastern Railway a few months earlier.

In horse-transport days, various feeder road services had been provided by contractors, and in some cases the G.W.R. paid

a subsidy to them. In January, 1903, the G.W.R. was expending more than £1,000 per annum by way of subsidy in connection with 13 coach and horse-bus services to and from stations on various parts of the system. With the introduction of motors, the company was able in some cases to use its own motors in substitution for horse services provided by private owners, and thus save the subsidy. Four examples are as follow:—

Route	Motor service began	Annual subsidy saved
Moretonhampstead & Chagford...	9.4.1906	£33
Modbury & Yealmpton ...	2.5.1904	£135
Saltash & Callington ...	1.6.1904	£156
Newcastle Emllyn & Cardigan ...	7.7.1920	£235

The war necessarily resulted in the suspension of some services, but in 1919 the G.W.R. was working 110 buses over 33 routes, the length varying from 3 miles between Uxbridge and Denham (a service begun on January 11, 1917, and worked with double-deck buses) to 21 miles between Abergavenny and Brecon. A wartime expedient to keep buses working during the period of acute petrol shortage was the use of coal-gas containers, an experiment begun in December, 1917.

After the war, the G.W.R. showed very considerable enterprise in opening new services, as well as restoring those which had been suspended as a war measure. Many of these came under the heading of general development, and were justified on commercial grounds. There were also some which were regarded as necessary for traffic development, but were not in themselves financially profitable; and in a few cases routes were opened on grounds of policy. An example of the last-named was the service between Reading, Sonning, and Twyford, which was established on October 2, 1924, as a substitute for a rail halt near Sonning, the estimated cost of which was £7,500.

As this post-war development was parallel to the rapid spread of provincial motorbus companies, the statutory authority of the G.W.R. to act as a motorbus operator was queried by rival interests. The present writer attended a meeting of substantial provincial bus proprietors as early as the summer of 1921, when this matter was discussed, but no one moved for an injunction to restrain the G.W.R., and thus test the legality of its operations, because the company's road services had been found to be in the public interest. Early in 1925, however, the company's rights to develop its bus services were questioned through the medium of the London & Provincial Omnibus Owners' Association, in respect of operations in the West of England and in North Wales. As a result, agreements were reached with the Devon Motor Transport Company, the Cornwall Motor Transport Company, and the Crosville Motor Company. These agreements were of value in avoiding wasteful competition, as they clearly allocated existing routes to one or other of the parties, or defined them as common to both parties on an agreed basis. The agreement with the Cornwall Motor Transport Company became effective on May 1, 1925, when certain G.W.R. activities were discontinued under the reciprocal arrangements. These agreements were not one-sided, for the Crosville Motor Company handed over to the G.W.R. such services as Brecon-Talgarth-Hay (on July 13, 1925), and Corwen-Llandrillo (on October 1, 1925).

About this time negotiations took place also, but without any immediate material result, with the Devon General Omnibus & Touring Co. Ltd., the Bristol Tramways & Carriage Co. Ltd., and the Birmingham & Midland Motor Omnibus Co. Ltd. In the

London area a *modus vivendi* had long since been reached with the London General Omnibus Co. Ltd. One of the early G.W.R. road services—that between Slough and Windsor (begun on July 18, 1904, to supplement the rail service)—had been discontinued by arrangement with the L.G.O.C. on July 28, 1913, and the L.G.O.C. had given an undertaking not to compete on weekdays with the G.W.R. service to Farnham Common.

The accusation sometimes levelled against our railway companies that they were unwilling to co-operate with other undertakings was certainly not exemplified by the story of the G.W.R. road motor departments. In South Wales, in particular, numerous arrangements were made between the railway company and various bus proprietors that were entirely independent of railway shareholdings. To quote but one example, reference may be made to the non-competitive agreement arrived at in March, 1927, between the G.W.R. and James & Sons, of Ammanford, which provided not only for the establishment of joint schedules but also for interavailability of return tickets. Incidentally, it was during 1927 that the G.W.R. was approaching its peak of bus operations, and in that year the directors authorised the purchase of seventy-five 32-seat buses. Over eight million passengers were carried in the one year and more than 4,800,000 miles were run.

In January, 1928, the G.W.R. took over the Dare Valley Motor Company of Aberdare, and in September of the same year F. T. Rosser's Motor Services working in East Monmouthshire. By this time the G.W.R. was working no fewer than 168 services and had 300 buses on the road.

The four main-line railways secured their comprehensive road transport Acts on August 3, 1928, and this marked the beginning of the end so far as direct railway operation of buses was concerned. The strong legal position then possessed by the railways enabled them to make

arrangements with the large provincial bus companies. In January, 1929, the Western National Omnibus Co. Ltd. was formed to amalgamate the G.W.R. services in the west of England, and those of the National Omnibus & Transport Co. Ltd. It is worthy of note that the G.W.R. road activities in Cornwall and Devon were of sufficient size and importance to justify an amalgamation and not merely a railway purchase of shareholdings in a bus company. Thereafter, similar arrangements were effected throughout the G.W.R. area, and, by the end of 1931, details had been concluded for the transfer of all G.W.R. bus services to road operators. Actually, the Slough-Beaconsfield route passed to London General Country Services Limited on April 10, 1932, and the Slough-Taplow route to the Thames Valley Traction Co. Ltd. on the same date. These were the final transfers with the exception of the joint G.W. & S.R. services at Weymouth. Such transfers, and the acquisition by the G.W.R. of substantial shareholdings in provincial bus companies, were facilitated considerably by an agreement made with the British Electric Traction Co. Ltd., the basis of which was that the shareholdings in operating companies of the B.E.T. group should be equalised as between the G.W.R. and the B.E.T. The G.W.R. now holds substantial direct or indirect interests in:—

Birmingham & Midland Motor Omnibus Co. Ltd.
Bristol Tramways & Carriage Co. Ltd.
City of Oxford Motor Services Limited.
Crosville Motor Services Limited.
Devon General Omnibus & Touring Co. Ltd.
Thames Valley Traction Co. Ltd.
Western National Omnibus Co. Ltd.
Western Welsh Omnibus Co. Ltd.

Obviously it is impossible to dwell in detail on such a widespread organisation, but six services of special interest are deserving of mention. The first is the Slough-Beaconsfield route, which was begun on March 1, 1904, and is thus the oldest motorbus route of the London Passenger Transport Board. Then there is the Wolverhampton-Bridgnorth service, a route

of about 15½ miles, which was also opened in 1904—on November 7 to be precise—and was turned over to Wolverhampton Corporation on July 1, 1923. The Weymouth-Wyke Regis service, the last to work in G.W.R. livery, was originally begun on June 26, 1905, but was suspended from August 31, 1909. It was resumed on July 22, 1912, as a joint G.W.R. and L.S.W.R. enterprise (but maintained by the G.W.R.) and as such was taken over by Southern National Omnibus Co. Ltd. on January 1, 1934. This closed the G.W.R. direct operation of bus services. Also, it would be improper to ignore the Oxford-Cheltenham coach service opened on October 29, 1928, in connection with a joint rail and road schedule between London and Cheltenham. The road section was taken over by the Bristol Tramways & Carriage Co. Ltd. on February 8, 1932. Our remaining two services were of rather a different category, being designed to cultivate special types of traffic. The first was one between Liverpool & Birkenhead, *via* the goods ferry boat, which was begun on September 20, 1909, to attract traffic from Liverpool to the G.W.R. at Birkenhead. Its principal value was to advertise the fact that the G.W.R. served the district, and to move American tourists from their hotels. It proved unremunerative and was not long lived. The other was from Aberystwyth to the summit of Plynlimmon, a regular bus service of an unique kind which was begun on August 2, 1928, with a specially-built Morris 6-wheeler with 8 speeds, of a type then used extensively by the Army. A special caterpillar track for the rear wheels was provided for use in emergency. When the district was taken over by the Crosville Motor Company, the route was abandoned, and the special motor was not transferred, as the G.W.R. required it for some special work in connection with goods services.

C.E.L.

Modern Methods in Track Dismantling

Lifting a 99-mile stretch of track was greatly expedited by a specially-equipped work train

SOME ingenious labour-saving methods were developed by the contractor responsible for the dismantling of 99 miles of the single-track line of the Chicago & North Western Railway between Linwood and Hastings, in Eastern Nebraska, U.S.A. For some years the C. & N.W.R. had sought authority from the Interstate Commerce Commission to abandon this 102½-mile route, which was eventually granted on December 24, 1941, except for 3 miles within the city limits of Hastings, which was sold to the Missouri Pacific Railroad. The line was built in 1888 through the South Platte agricultural area, and was laid chiefly with 60 lb. per yd. flat-bottom rail in 30 ft. lengths, though it also included short lengths of 50, 65, 80, and 90 lb. rail. Four-hole 26-in. fish-plates were in use, with 8 in. x 6 in. sleepers 8 ft. long, the latter largely of pine treated with zinc chloride or a zinc chloride-petroleum mixture. Rails and fishplates had been requisitioned by a subsidiary of the Reconstruction Finance Corporation for Navy use.

Bridges on the line included 15 steel bridges ranging from short joist spans to a deck plate girder span 71 ft. long, and 78 timber bridges, with 416 spans of

from 13 to 16 ft., making a total length of 5,572 ft. The latter bridges were mostly of cedar and treated or untreated piles. Bridge timbers in sound condition, and cut-off tops of piles of more than 10 ft. length, were salvaged for re-use. Of the steel bridges only one 35 ft. deck plate-girder span, and one 23½-ft. I-beam span, were salvaged; the remainder, all of insufficient strength for modern load ratings, were sold for scrap.

For the dismantling a work train travelled from Hastings to Linwood, picking up all the material as it went. At the head end was a flat wagon for loading up the scrap; next was a petrol-driven 30-ton Whitcomb locomotive, and then a tool and supply car (which also gave shelter to the men in inclement weather), a flat wagon carrying two double-drum hoists operated by petrol engines, three to five bogie gondola wagons for loading the material, and a flat wagon carrying the trailing end of the hoisting gear. Between the front and rear hoist-wagons ran a cable-way, supported by two gallews frames, one mounted on each of these wagons, at a height of 23 ft. above rail. The gallews frames were built up of heavy timbers; the front one, hinged at the base to permit lowering,

to clear overhead obstructions, was held in a vertical position by tie cables; the rear one, inclined outwards at 30° and projecting 10 ft. beyond the rear end of the train, was braced rigidly in its inclined position by rail-reinforced timber struts anchored to the rear wagon.

Between the two gallews frames extended a carrying cable. The first double-drum hoist was used to keep the carrying cable taut at all times, and the second worked a travelling sheave, which made it possible to pick up loads with a load line, and, holding them at the height desired, to move them forward along and above the train to the wagon on which it was desired to deposit them. In this way it was not merely possible to deal expeditiously with the rails, but also to sort them by loading each batch on the wagon desired.

The labour force comprised 10 to 12 men on the track, freeing the rails and hooking them on to the load line; two hoist operators on the machinery car; two to four men on the wagons releasing the rails from the load line and stacking them; a man on the rear gallews frame co-ordinating the operations of the men on the ground, in the wagons, and at the hoists; and a general foreman. With this organisation it was found possible to dismantle and load from 2½ to 3 miles of track in a day of 8 to 9 hr.

Ahead of the work train, men with claw bars, wrenches, and oxy-acetylene torches removed all spikes except four

to each rail (to keep the rails in position until the work train had passed over at low speed), and all fish-bolts except one centre bolt to each joint, at the same time taking up all the sole-plates and anti-creepers. This material was piled at the side of the track, ready for loading on to the leading wagon as the work train approached.

As soon as the train had passed over eight rail-lengths, the last spikes and fishplates were removed, and the forward ends of each pair of rails were barred towards each other till the ends were about a foot apart; a short chain sling, with a hook at each end, was then hooked into the leading end of each rail. The load line of the hoisting gear was next pulled out to the rearmost pair of rails, and the hooks at the other ends of the chain slings attached to these rails were hooked on to a ring at the end of the line. The hoisting engine was then set in motion, dragging these two rails forward, and as they came abreast of the next pair, the second pair of chain slings was hooked on to the ring, and so on, until finally the eight rails were being drawn simultaneously forward, and up over a broad inclined metal apron fixed to the rear end of the rear wagon. The hoisting gear continued to draw the bunch of eight rails forward until they

reached the appropriate wagon, where the chain slings were detached and returned, with the load line, to the back end of the train.

For dealing with sleepers, a heavy-duty caterpillar tractor was used, with a strong steel rack on its rear end, with stakes on one side to support the sleepers as loaded longitudinally, and capable of holding about 20 at a time. As soon as a group of rails had been started forward for loading, the sleepers were turned over for inspection, and those fit for re-use were loaded on to the tractor rack. The tractor was then backed up to the rear car of the train, and a sling was passed round the sleepers to enable the 20 to be lifted in one operation by the hoist and passed to the appropriate wagon. The work of lifting the sleepers proceeded more rapidly than the lifting of the rails, and a supplementary method of picking up the former was to stack them at the side of the track, and pick them up by motor-lorry with hand loading. The latter method was also resorted to when the sleeper wagons had become loaded to capacity.

As to the bridges, as far as practicable bracings and guard rails were removed before the arrival of the work train. Final unbolting was begun immediately the train had passed, and the structure

was then pulled to pieces by the hoisting equipment on the train. Individual members were separated for convenient handling and storage, but in the actual loading, as many as four or five pieces were often bound together by cables or chain slings and passed together over the train to the appropriate stowage wagons. Where necessary, oxy-acetylene torches were used to burn apart the various members of steel bridges. The piles of pile structures were cut off as near to the ground as possible, and those lengths to be salvaged were loaded on to the wagons similarly to the deck and frame bent members, usually two or three at a time. One five-span pile bridge was dismantled and loaded on to the train in no more than 90 min. working time.

From time to time it was necessary to remove from the train the loaded wagons—which were worked forward by ordinary steam-power over the remaining track to Linwood—and to set in empty wagons. To do this required the lowering of the front galleys frame and the dismantling of the cable-way, but this was a relatively simple operation. For the foregoing particulars of the dismantling of the Hastings-Linwood line we are indebted to our American contemporary *Railway Engineering & Maintenance*.

Improved German Refrigerator Wagons

A considerable increase in the transport of foodstuffs in cold storage is reported from Germany

THE increasing use being made in Germany of refrigerated foodstuffs, as a consequence of war conditions, has caused the Reichsbahn to review the question of the design of refrigerator wagons, as the types in use up to 1942 had been found not to meet the necessity of using lower temperatures and meeting the conditions imposed by long journeys, often subject to delays, now obtaining with certain supplies. New designs were accordingly prepared and many trial trips undertaken, at first without consignments of value but eventually with a normal load of perishable articles.

Four methods of maintaining the temperature were used in the trials, namely: (1) Ice; (2) mixture of ice and salt; (3) eutectic brine solution, in cooling containers; (4) refrigerating machinery. It was found that with methods 1 to 3 an increase in the insulating qualities of the wagons was absolutely necessary, to limit the consumption of materials to a satisfactory amount. In the wagons hitherto used, in which temperatures lower than freezing were not called for, the thickness of the wood insulation-lining had been 120 mm. (4½ in.), but a thickness of 300 mm. (11½ in.) was adopted for the new extra low temperature design. The body of the wagon was divided into two cold chambers with a central ante-chamber.

The first experiments were conducted on a wagon formerly used to convey sea fish on the Trondheim-Hamburg run and a marked improvement over earlier types in the matter of temperature retention was recorded. The daily consumption of materials was for ice 162 kg. (357 lb.); eutectic brine, 456 kg. (1,005 lb.); and ice-salt mixture, 480 kg. (1,058 lb.), with a certain increase when strong sunlight prevails, not reckoning the pre-cooling period. Ice only, strewn over the consignment through doors between the ante-chamber and the cold chambers, was

used in the first experimental vehicle, but shortly afterwards a trough container below the roof was adopted. For the brine experiments the containers, 48 in. all, were slid in the cold chambers, also just below the roof. The ice-salt mixture was inserted through special hatches. Three other wagons were fitted with diesel-driven refrigerating machines, able to work at least seven days without attention.

It was particularly desired to keep working tare weight to a minimum and in this respect the plain ice system showed the best results. The weight decreases in the course of the journey, but with ice-salt mixture this is not the case. Plain ice is expensive and difficult to obtain in some places served by the wagons. Although cheaper for materials the ice-salt mixture system requires expenditure on preparation which partly offsets this, unless special appliances are available. Weight is rather high in proportion to the refrigerating effect obtained, limiting the useful service period to about 4 days, so that on long journeys attention *en route* is needed. It is also necessary to use containers that are a little awkward to handle. The brine system is considered even less advantageous. The weight is appreciable and the necessity of having depots for re-cooling the containers a great drawback. It is also difficult to control, and if insufficiently-cooled containers are issued there is risk of a spoilt consignment. The trials with wagons equipped with refrigerating machines showed that there was much risk of failure, even with careful maintenance, increased by the fact that the vibration and shocks—as in shunting—experienced during a journey favoured greater liability to breakdown of delicate parts, especially of the diesel engine, compared with stationary equipment.

Although war conditions sometimes

render this system essential, its initial and maintenance charges, the extra weight required, and the need of oil and water reservoirs, render it inadvisable to employ it as long as any other arrangement will suffice. Such wagons are useful for bringing supplies from far distant places, before local cold storage equipment can be put down. In these cases, however, it is judged better to run trains of wagons, in which the individual refrigerating machines are electrically driven; power is provided by a diesel-generator set in a separate van. The voltage should be such that connection can be made to external electric supply wires if necessary, and provision must be made to permit wagons to run with ice supply away from their train, say on short branch-line trips. The Reichsbahn is understood to be making plans for developing this group-vehicle system.

On the basis of the trials, a four-wheel extra-low-temperature wagon was designed; the main form of construction in three chambers was retained. The floor and wall plates were formed of galvanised platework, instead of laths and planks as hitherto, sufficiently rigid to dispense with the supports usually used and reducing the points where temperature loss is created. This construction also allows of more rapid pre-cooling. The underframe is welded and the main body formed of stout 10 mm. (about ¾ in.) planking. The roof, with its insulating material, forms a single unit, removable complete when repairs to the interior have to be undertaken. The side-wall insulation is of Alfol, 300 mm. (11½ in.) thick, and flock is used on the roof and below the flooring; this provides a high degree of insulation.

Most of the wagons are arranged for ice with a few for ice-salt mixture. For service on the routes to the eastern occupied districts, however, wagons of large capacity are thought necessary and an eight wheel design, for ice or machine refrigeration at will, is stated to have been developed. The above general details appeared recently in the *V.D.F. Zeitschrift* in an article by Herr Bruno Nitsch.

New 4-8-4 Tender Locomotives for the Canadian National Railways

Improved performance and important fuel savings are given by modernised version of the Class "6100" locomotive

CONSIDERABLE satisfaction has been given over a period of years by the Class "6100" Northern type locomotives operating on the Canadian National Railways and therefore the decision taken some time ago to build a modernised version of this engine was natural. The new engines, of which 35 have already been built by the Montreal Locomotive Works, are numbered 6200 to 6234 and form what is known as the "U-2-G" Class. Plans and specifications were prepared under the direction of Mr. John Roberts, Chief of Motive Power & Car Equipment, Canadian National Railways. As our illustration shows, the new locomotives are outwardly conventional and of good general appearance. The more notable innovations are relatively inconspicuous, though fundamentally important, detail improvements, more particularly in the running gear and spring rigging and in the steam passages both to and from the cylinders.

Embodied in the running gear and spring rigging are means for controlling lateral resistance to movement, not only of the leading truck but also of the leading coupled axle, the second coupled (or main-drive) axle, and the trailing truck. The control forces are proportional to the distance of the controlled members from the last coupled axle; this axle is assumed to coincide with the point about which the locomotive pivots when it negotiates a curve. It is near here that the centre of gravity of the locomotive is calculated to lie.

The distance between the wheel tyres is the same for all driving axles, namely, 53½ in. Dead or inactive points in the spring rigging are cushioned with nests of coil springs, and provision is made in the

spring hangers for flexibility in every direction.

The term "lever principle" is applied to this particular form of suspension and it is claimed that it serves to cushion the centrifugal tendency of the locomotive on curves so that it will smoothly negotiate all ordinary curves at high operating speeds. The suspension exercises a marked improvement on the nosing tendency due to unbalanced reciprocating masses and consequently it has been found possible to limit the proportion of these that are counterbalanced to 26 per cent., with a corresponding improvement in the "dynamic augment" of driving-axle loads at high speed. Sufficient initial lateral resistance is provided by the suspension to check oscillations when the locomotive is running on a straight track. The lever principle has been used in previous designs of locomotive and, besides giving the immediately obvious advantages of more uniform adhesion, reduced rolling resistance, less slippage, and diminished risk of wheel derailment, it enables a higher centre of gravity to be carried with safety. This last advantage contributes to riding comfort and reduces wear and tear not only of the locomotive itself, but also of the track.

Most important of the above advantages from the fuel economy standpoint is the reduced rolling resistance, because this is responsible for a saving in the cylinder horsepower which has to be expended merely to propel the engine.

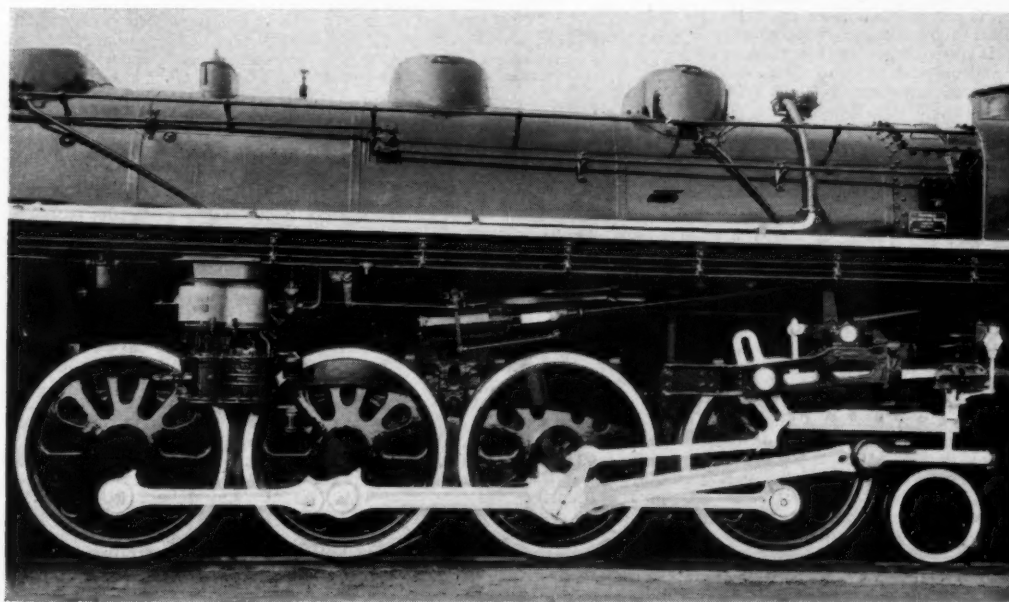
Economies are also expected to result from reducing the resistances to steam flow. Passages have been enlarged and streamlined and a new design of large element type E superheater has been fitted. Walschaerts gear gives a travel



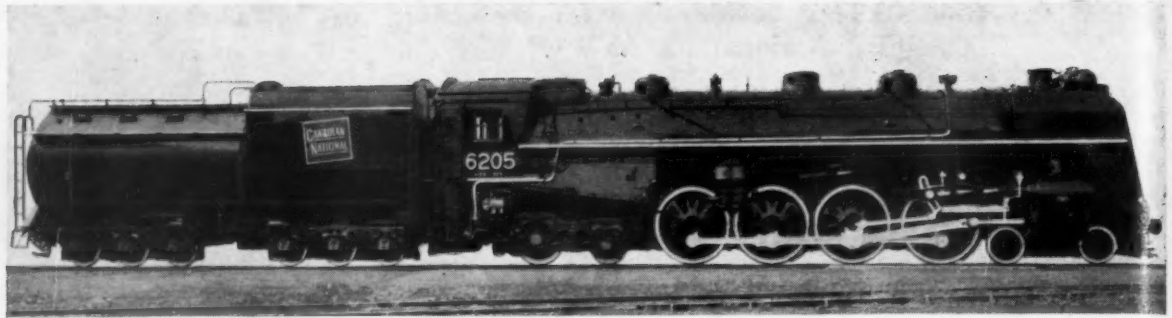
Front end, with smoke deflector plates

of 7½ in. to 14 in. piston valves with a steam lap of 1½ in. and an exhaust clearance of ⅜ in. The lead is ¼ in. Exhaust back pressure is inevitably caused by dependence on a blast pipe for draught, but by removing unnecessary obstructions to air-flow through the firebox and tubes it has been possible to use a freer exhaust. The chief improvements have been made in the neighbourhood of the ash pan. The air openings are larger, and pipes which formerly blocked them to some extent have been diverted. Deflector plates have been so arranged in the smokebox as to offer the least resistance to the flow of gases on their way to the chimney.

On account of the improvements described here, the locomotives are ex-



View of motion showing Boxpak wheels and Walschaerts valve gear with long gear frame



Modernised version of the Canadian National Railways Class "6100" locomotive

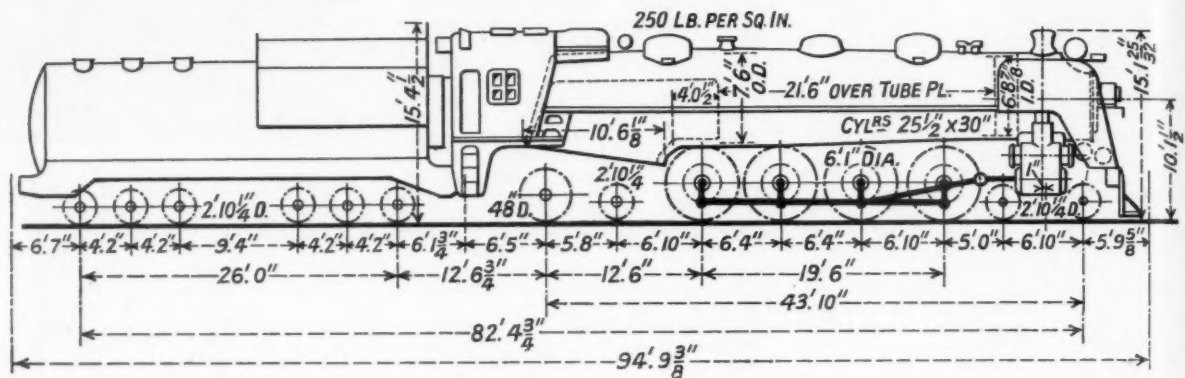


Diagram showing principal dimensions and weight of the C.N.R. Class "6100" locomotive

pected to use 13 or 14 per cent. less fuel than engines of the earlier design.

General Particulars

The boiler is described as being of the straight-top, taper-bottom type, in three courses, with the large course of 90 in. outside dia. and the first course of 80½ in. inside dia. The superheater is very large, as can be seen from the table of particulars given below; consequently the boiler is provided with 145 flues of 4 in. dia. and only 33 tubes of 2½ in. dia. The length in each instance is 21 ft. 6 in.

The firebox has a length of 10 ft. 6 in. and a width of 8 ft. Its heating surface is increased by three 3 in. arch tubes and two Nicholson thermic syphons. A mechanical stoker is provided and the power for this is derived from a small engine situated on the tender in a compartment behind the fuel hopper.

MAIN PARTICULARS OF ENGINE

Cylinders (2), dia.	25½ in.
Piston stroke	30 in.
Wheels (coupled), dia.	6 ft. 1 in.
Wheelbase, driving	19 ft. 6 in.
" engine	43 ft. 10 in.
" engine and tender	82 ft. 4½ in.
Heating surface, tubes	416 sq. ft.
" " flues	3,250 sq. ft.
" " firebox	315 sq. ft.
" " arch tubes	22 sq. ft.
" " syphons	77 sq. ft.
" " combined	4,080 sq. ft.
" " evaporative	1,835 sq. ft.
" " superheater	5,915 sq. ft.
" " total	84.3 sq. ft.
Grate area	250 lb.
Boiler pressure, per sq. in.	56,800 lb.
Tractive effort (85 per cent. b.p.)	69,000 lb.
Weight on leading truck	244,500 lb.
" " driving wheels	86,100 lb.
" " trailing truck	399,600 lb.
" total, of engine	4.3
Factor of adhesion	

As our illustration shows, the driving wheels of the engine are of the Boxpok type. The leading truck is equipped with inside roller bearings of Timken manufacture and its wheels are of 34½ in. diameter. The trailing truck has outside Timken roller bearings and its wheels are of two diameters; 34½ in. and 48 in. for leading and trailing wheels respectively. Both trucks were supplied by the General Steel Castings Corporation which provided also the bed, a remarkable unit which combines the cylinders, frame, and cradle in a single casting of more than 34 tons in weight.

The equipment of the locomotive includes a Wakefield mechanical lubricator and an Elesco feedwater heater.

The tender has a water capacity of 11,600 gal. and a fuel capacity of 18 tons. It is carried on two General Steel Castings Corporation 6-wheel trucks with 34½ in. dia. wheels.

TRANSPORT CO-OPERATION.—At the recent annual general meeting of the Scottish Section of the Institute of Transport Mr. R. J. M. Inglis, L.N.E.R. Divisional General Manager for the Scottish Area, read a paper entitled "Some Observations on Wartime Transport," in which he made a plea for co-operation after the war on the same lines as that which is a feature of wartime transport. Speaking of the part now being played by the railways, he referred to the 50 per cent. increase in traffic due to the movement of war equipment and personnel, and the difficulties produced by the re-orientation of industry. In the early stages of the war, most of the east coast ports were closed, making it necessary to handle goods from other ports hundreds of miles away. For example,

timber used to be despatched from Baltic and Canadian ports, but now it was to a great extent being cut and transported in this country. In Scotland alone the railways had handled 1,200,000 tons of timber, providing loads for over 20 trains daily throughout the year. The tonnage of Scottish potatoes handled had doubled, rising to 440,000 tons, requiring 750 trains each of 50 wagons between the months of October and March.

LONDON TRANSPORT PAPER ECONOMY.—The reduced size and thickness of London Transport tickets diminishes paper consumption by 600 tons yearly; 22 tons have been saved by reducing the size of conductors' cash total sheets and log cards—a slight alteration to time clocks had to be

made to allow for this; and 800 tons of tickets were salvaged last year for repulping. With material sent for pulping, the yearly saving comes to some 1,700 tons. In addition, large quantities of miscellaneous paper are recovered from vehicles or swept out of bus and tram shelters daily.

PRESERVING HIGH-SPEED STEEL TOOLS.—To increase the life of high-speed steel tools and reduce re-grinding time, the London Passenger Transport Board is installing a salt bath furnace in the tool room at its railway overhaul works. This equipment enables the necessary high temperatures to be achieved without surface oxidation or decarburisation (which causes the formation of a soft skin on the tool), and a tool of uniform hardness results.

RAILWAY NEWS SECTION

PERSONAL

Sir Ernest Clark, K.C.B., K.C.M.G., has had the honour of G.C.M.G. conferred upon him on his completing ten years' service as Governor of Tasmania. Before the formation of the London Passenger Transport Board in 1933, Sir Ernest Clark was a Director of the Central London, the City & South London, the London Electric, the Metropolitan District, and the Whitechapel & Bow Railway Companies.

The second supplement to *The London Gazette* of July 27, 1943, contains the announcement that the King has awarded the British Empire Medal (Civil Division) to Mr. Raymond Jones, Employee, Railway Department, Queensland, and to five members of the Civil Constructional Corps, Commonwealth of Australia, for courage and determination in preventing a serious bush fire which was in danger of arising from the explosion of a bomb dump.

MINISTRY OF SUPPLY

Major J. M. Campbell has been relieved from his duties as Joint Deputy Controller for Raw Materials in the Iron & Steel Control at his own request. His co-deputy controller, Mr. C. R. Wheeler, will carry on as Deputy Controller.

Mr. T. H. Summerson has resigned as Director for Steel Castings, and will be succeeded by Mr. H. Humphries, who will also continue his existing office as Director for Steel Forgings, and Tyres, Wheels & Axles.

We understand that Mr. K. G. Stacey Hatfield, Director, Royal Engineer Equipment (B), Ministry of Supply, is leaving the Ministry.

Mr. J. B. Figgins has been elected Assistant General Secretary of the National Union of Railwaymen.

L.N.E.R. APPOINTMENTS

The L.N.E.R. announces that the following appointments have been made:—

Mr. J. Blair, Assistant to Chief Mechanical Engineer, Doncaster, to be Mechanical Engineer (Outdoor), Doncaster, in succession to Mr. C. H. M. Elwell, deceased. Mr. S. King, District Docks Machinery Engineer, Hull, will succeed Mr. Blair.

Mr. T. Anderson, Chief Legal Adviser's Office, Edinburgh, to be Acting Solicitor (Scotland) as from October 1, 1943, in consequence of the retirement of Mr. J. H. Hunter.

Mr. A. Moss, Signal & Telegraph Engineer, Edinburgh, to be Assistant to Engineer (Signals), London.

Mr. L. Preston, Assistant Signal & Telegraph Engineer, London, to be Acting Assistant to Engineer (Signals), Edinburgh.

Mr. A. A. Harrison, Cartage Manager, North Eastern Area, to be Acting Assistant Goods Manager, Southern Area, in succession to Mr. M. A. Cameron, who was recently appointed Acting Passenger Manager, Scottish Area.

Mr. F. T. Gray, Acting Assistant to District Goods Manager, Hull, to be Acting Cartage Manager, North Eastern Area, in succession to Mr. A. A. Harrison.

Mr. B. Adkinson, District Locomotive Superintendent, Norwich, to be District Locomotive Superintendent, Gorton, in succession to Mr. C. B. Kirk, who has retired.

Mr. R. A. Riddles, C.B.E., Mechanical & Electrical Engineer (Scotland), L.M.S.R., who, as recorded in our August 6 issue, has been appointed Chief Stores Superintendent, L.M.S.R., has held the position of Deputy Director-General, Royal Engineer Equipment, Ministry of Supply, since February, 1941. Mr. Riddles began his railway career as a premium apprentice at Crewe Works, London & North Western Railway, in 1909. He saw war service with the Royal Engineers from 1914-19, and in December, 1920, was appointed Assistant to the Works Manager at Crewe, where he became Progress Assistant in 1925. Three years later he was promoted to be Assistant Works

pointed Mr. C. Johnston, of the General Manager's Department, Manager of the Hotels & Catering Department.

We regret to record the death on July 31 of Mr. Thomas Cochran, who was Mineral Agent at Glasgow, L.M.S.R., from 1931 until his retirement in June, 1940, after 52 years' service. He had entered the employment of the Caledonian Railway Company in August, 1888, as a clerk at Rutherglen Goods Station.

Mr. A. Shoemack, Chief Clerk, Paddington Goods, G.W.R., who has been appointed Chief Clerk, London District Goods



Mr. R. A. Riddles, C.B.E., M.I.Mech.E., M.I.Loco.E.

Appointed Chief Stores Superintendent, L.M.S.R., as from November 1

Superintendent at Derby, and in 1931 was transferred to Crewe in a similar position. In August, 1933, he was appointed Locomotive Assistant to the Chief Mechanical Engineer at Euston, and in August, 1935, became Principal Assistant to the Chief Mechanical Engineer. He was appointed Mechanical & Electrical Engineer, Scotland, in 1937, but in September, 1939, was seconded to the Ministry of Supply as Director of Transportation Equipment, which post he held until February, 1941, when he was appointed Deputy Director-General, Royal Engineer Equipment, in the Ministry. During his period of office at the Ministry of Supply, Mr. Riddles was closely associated with the provision and design of a number of locomotives required for service in many parts of the world. The engine with which his name will be longest associated is the British-built "austerity" 2-8-0 type tender locomotive of which over 100 have already been built. Mr. Riddles is a Member of the Institution of Mechanical Engineers, and of the Institution of Locomotive Engineers.

GREAT NORTHERN RAILWAY (I.)

The directors of the Great Northern Railway Company (Ireland) have ap-

pointed Mr. J. Powell, Chief Clerk to the London District Goods Manager, G.W.R., who has been appointed Assistant District Goods Manager, Swansea, in succession to Mr. A. C. B. Pickford, whose appointment as District Goods Manager, Swansea, was recorded in our issue of July 30, began his railway career at Cardiff Goods station in 1921. Later in the same year he was transferred to the Plymouth district. After experience in the Goods and Traffic Departments in the west of England, including a period in the Exeter District Goods Mana-

ger's Office, he was appointed Junior Assistant to the London District Goods Manager, in December, 1934. In October, 1937, Mr. Powell was appointed Chief Clerk to the London District Goods Manager. He was temporarily in charge of Smithfield Goods Station for the first six months of this year.

We regret to record the death on July 31 of Mr. W. J. Shorter, Assistant Public Relations Officer, Southern Railway, at the age of 58. Mr. Shorter joined the S.E. &



The late Mr. W. J. Shorter
Assistant Public Relations Officer, S.R.

C.R. as a clerk at Selsdon Road in May, 1899. After serving at various stations, including a spell at Folkestone Harbour in connection with Continental work, Mr. Shorter was appointed to the Superintendent of the Line's office in January, 1920. After the amalgamation of the railways he was transferred in November, 1923, to the Indoor Commercial Manager's Office, and in April, 1930, when Mr. Derry joined the Development Section, Mr. Shorter became Deputy Chief of the Fares & Excursion Section of the Commercial Assistant's Department. In January, 1934, he became Chief of the Fares & Excursions Section, and in April, 1936, he was appointed Chief of the Fares, Excursions, and Season Ticket Sections. He succeeded Mr. Derry as Assistant for Development of Traffic & Statistics on October 1, 1937. At the commencement of the war, with the consequent restriction on further development of civil traffic, Mr. Shorter took up temporarily the post of Assistant Public Relations Officer in which position his long experience of public contacts was invaluable. Mr. Shorter was a Graduate of the Institute of Transport. On the formation of the Southern Railway Home Guard in 1940, Mr. Shorter was appointed Administrative Officer. The funeral took place on Thursday, August 5, at the South London Crematorium, Streatham Park, and was attended by the following:—

Messrs. R. M. T. Richards (Traffic Manager); C. Grasmann (Public Relations & Advertising Officer, who also represented the General Manager); W. J. England (Superintendent of Operation); P. Nunn (London East Divisional Superintendent); C. F. de Pury (London West Divisional Superintendent); F. C. Bishop (Assistant London Central Divisional Superintendent); J. L. Rendall (Indoor Assistant to Traffic Manager); R. H. Petherick (Goods

Agent, Bricklayers Arms, also represented Mr. E. E. Young, London District Freight Superintendent); H. J. Bourn (represented Mr. R. H. Hacker, Continental Superintendent); C. Brazier (Staff Assistant to Traffic Manager); W. Tingley (represented Mr. W. M. Perts, Commercial Superintendent); W. S. Kersey (Chief Clerk, Stationmaster's Office, Victoria, represented Mr. Bridger, Stationmaster, Victoria).

Commercial Department.—Messrs. Tournour, Waite, Weeks, Dean, and Clayton.

L.M.S.R.—Mr. D. Faulkner (also represented Mr. G. H. Loftus Allen, Advertising & Publicity Officer).

Home Guard.—Lt.-Colonel Lithgow, Major Ritchie, and Major Clinging.

Frederick Hotels Limited.—Messrs. Ashton and Sellers.

London East Division.—Messrs. G. Cheal (Chief Clerk, London East Divisional Superintendent's Office), F. Bassett (Stationmaster, Charing Cross), and A. M. West (Stationmaster, Holborn Viaduct).

Publicity Department.—Messrs. G. R. Walter (Assistant to Public Relations Officer), J. Masterton, A. C. Streatfield, and B. C. Buchan.

Trade Advertising Department.—Messrs W. W. Wood, Willard, Green, Clarke, and Hastings.

Mr. R. C. Vaughan, Chairman, Canadian National Railways Company, has been elected President of the Railway Association of Canada.

Mr. James Frederick Gee, who, as recorded in our August 6 issue, died on August 1, at the age of 73, was Chief Accountant, L.M.S.R., from 1925 to 1929, when he retired. Mr. Gee entered the London & North Western Railway service in 1884 in the Audit & Expenditure Department. In 1887 he was transferred to the office of the Chief Accountant, and in 1909 he became Chief Clerk. He was appointed Assistant Accountant in March, 1927, and became Chief Accountant in August, 1929. At the beginning of 1922, Mr. Gee was appointed Accountant of the new London & North Western Railway Company, which was then formed in consequence of the amalgamation of the London & North Western and Lancashire & Yorkshire Railways. On the formation of the London Midland & Scottish Railway, as from January 1, 1923, Mr. Gee became Joint Accountant of that company, and he held this position until appointed Chief Accountant in 1925.

Mr. J. A. Ralph, who, as recorded in our July 30 issue, has been appointed Chief Cashier, G.W.R., was born in June, 1890. He entered the service of the G.W.R. in the office of the Registrar of Stocks & Shares in November, 1904. He served in the 1914-19 war with the Royal Field Artillery, and on his return to Paddington was transferred to the Chief Cashier's Department. In July, 1936, he became Chief Clerk; he was appointed Assistant Chief Cashier in June, 1940, which post he



Mr. J. A. Ralph
Appointed Chief Cashier, G.W.R.

held until his present appointment. Mr. Ralph took a course of general economics, with special reference to transport, at the London School of Economics.

Mr. William Clower, O.B.E., Chief Officer for Labour & Establishment, L.M.S.R., from 1927 until his retirement in 1929, who died on March 18 last, in his 80th year, has left £31,887.



Sir Charles Newton, Chief General Manager, L.N.E.R., at the ceremony at which he was recently presented with a piece of silver, suitably inscribed, as a memento of the honour of knighthood conferred on him by the King. (See our last week's issue, page 139)

TRANSPORT SERVICES AND THE WAR—202

Double Summer Time

The Home Secretary has announced that double summer time in Great Britain will not be extended beyond August 15.

Emergency Fruit Transport

Because of the great weight of the Kent plum crop, the 35-mile restriction on the use of road transport has been lifted temporarily, and wastage consequently has been light.

Holiday Weekend Traffic

The following message has been addressed to rail and road workers by Lord Leathers, the Minister of War Transport:

"Over the August Bank holiday, as well as during the previous weekend, the strength and ingenuity of all those engaged in the operation of trains and buses was taxed to the utmost and it is to their credit that the situation was kept well under control. Lord Leathers congratulates transport staffs generally—not least the women—on the skilful and efficient way in which they tackled a difficult situation.

"It should not be forgotten that the passenger on the platform sees only one side of the railwayman's work. The more important work goes on behind the scenes, in the depots, sidings, and offices; and, thanks to the devotion to duty shown by staffs everywhere, the flow of traffic, essential to our fighting forces, was successfully maintained. In offering his congratulations to transport personnel, Lord Leathers wishes to thank all those members of the public who wisely refrained from travelling. They chose the better part."

During the week ended August 2, the L.N.E.R. ran 33,331 freight trains for the transport of raw materials, munitions, guns, tanks, and other war equipment, fuel, and food. In addition, 1,778 specials were provided for troops and factory workers not conveyed by ordinary passenger services. The ordinary passenger services—suburban (steam and electric), branch line, cross country, and main line—consisted of 35,832 trains, very considerably fewer than those provided during a peacetime Bank Holiday week, and no extra passenger trains were run.

The total traffic movement throughout the L.N.E.R. system during the 7 days up to and including August Bank Holiday was represented by no fewer than 70,941 trains of all kinds—or more than 10,000 a day. Although the reduced passenger services now in operation resulted in some trains being uncomfortably full on the Thursday, Friday, and Saturday, the all-important freight traffic went through.

German Holiday Travel

According to a recent announcement by the Reichsbahn, trains will not be duplicated, nor will any special trains be operated, during the holiday period this year. Passengers without children of school age are recommended to travel before or after the school vacation. Special admission tickets are being issued shortly before the beginning and before the end of the school vacation for trains specified by each on the Reichsbahn divisional managements concerned.

The normal holiday period for adult workers (manual or otherwise) has been fixed at fourteen weekdays; an additional week is allowed for persons over 50 years of age. Holiday travellers are faced with considerable difficulties in securing accommodation in hotels and boarding houses, as priority is given compulsorily to children,

to bombed-out persons (even for longer than the normal holiday period), to disabled members of the Forces, to Servicemen on leave, and to "holiday groups" (*Urlaubsgemeinschaften*) of workers from war industries. The present tendency of the travelling public in Germany is in favour of long-distance travel, prompted probably by the abundance of money brought about by higher wartime earnings. To reduce overcrowding in trains, particularly on Saturdays and Sundays, an Order provides that holidays should normally begin only between Tuesdays and Fridays, but this is generally disregarded as it is still legal to begin a holiday period at the weekend. It is admitted that long-distance holiday travel is in many cases a result of the enormous number of Germans now employed in distant places to which they have been assigned as a result of the transfer of industries. These persons are naturally desirous of spending their holidays with their own families in their home places. The upheaval brought about by mass changes of location of large sections of the German population is but one additional factor responsible for the present difficult conditions of travel in Germany.

New German Travel Ban

It was announced in Berlin on August 5 that railway travel without a police permit was banned forthwith. Previously-issued permits were cancelled. The Order is reported to have been made in connection with the large-scale evacuation of Berlin, Leipzig, Chemnitz, and Kiel.

Italian Railway Militarisation

Marshall Badoglio's Government has issued a Decree, which became effective on July 30, militarising the staffs of the railways, posts, telegraphs, and radio. The Decree was signed by the Ministers of War, Transport, and Finance.

Thousands of leaflets headed "We must save our trains" are circulating in Italy, according to a New York radio announcement. The leaflets read: "The Nazis are robbing us now and they will rob us more. They will try to haul off to Germany everything they want. What they want most is our trains. They desperately need our 4,700 locomotives and 130,000 freight cars. They plan to steal them. We must save our trains."

It is interesting to note that the official locomotive stock of the Italian State Railways alone, when Italy entered the war, was 6,430. There were also more than 500 locomotives in the hands of the private railways. If wartime building has balanced R.A.F. destruction, one third of the pre-war stock has already gone elsewhere.

Roumania-Germany Goods Traffic

There are at present three goods traffic routes by railway connecting Roumania with Germany, one *via* Hungary, another *via* Hungary, Slovakia, and Bohemia-Moravia, and the third *via* Northern Roumania; on the last-named the Roumanian frontier station is Oraseni, the former frontier station for Poland. Oraseni is 350 miles from Bucharest (North Station), and the main line runs *via* Ploeshti (South), Buzeu, and Cerauti. Sniatyn, in German-occupied Poland (General-Gouvernement), 7 miles beyond Oraseni, is 740 miles from Berlin (Charlottenburg), and the route is *via* Lwow, Krakow, Trzebinia (the frontier station between the General-Gouvernement and the German-annexed provinces of Poland), Katowice, and Breslau. This is the direct Roumano-German goods route touching no third-party territory, and in

the German long-term traffic plans it is intended to become the main railway route linking the two countries. For the time being, civilian goods traffic over this line is subjected to limitations. Only consignments of coal and coke, and empty tank wagons, are admitted in the north-south direction, but traffic originating in Roumania and destined for German or Polish stations is not restricted.

German Locomotive Stock

The rapidly-dwindling locomotive stock under German control has been increased by two units which have been lying unused for some years in the depot of a Swiss secondary railway. They were built in 1891. Their sale to Vienna is reported in a message from Zurich.

New Spanish Military Railway

A new military railway, connecting Cuatro Vientos Station (on the Madrid-Almorox line) with the new barracks at Carabanchel, was opened on May 30. Carabanchel is also the location of the new motor vehicle shops of the Army.

Danish Emergency Train Services

As a result of the withdrawal of the ferry services between Kalundborg and Aarhus, traffic between Copenhagen and Jutland is now concentrated mainly on the Copenhagen-Korsør-Fredericia-Aarhus main line. To ease travelling conditions, certain trains on this line were duplicated as from June 1, when the summer timetable came into force, and a specially fast train is operating daily between June 19 and August 23, leaving Copenhagen at 1.45 p.m. and arriving at Aarhus at 10.6 p.m. In the reverse direction the departure is at 7.35 a.m. and the arrival at Copenhagen at 3.40 p.m. Connection is provided at Fredericia for Esbjerg (on the west coast of Jutland) and for Padborg, the Danish frontier town with Germany. As the route includes the ferry section between Korsør and Nyborg, it is necessary to distribute the passengers evenly among the various trains. Compulsory reservation of seats has therefore been introduced in respect of the fast trains leaving Copenhagen at 7.52 a.m. and 8 a.m., and also those arriving at Copenhagen at 8.23 p.m. and 8.40 p.m. Between June 19 and August 23 reservation of seats is also required in respect of all other long-distance trains on this line.

There is now a motor sailing ship in service on the eastern section (between Kalundborg and Kolby, on Samsø island) of the former Kalundborg-Aarhus ferry route; on this, seat reservation is also required.

Yunnan Railway Control

A message from Chungking dated August 4 says that, as a result of the severance of diplomatic relations with Vichy, representatives of the Chinese Ministry of Communications have taken over full control of the Yunnan Railway. All rights to which France was formerly entitled under the treaties concerning the railway are regarded as existing no longer. Presumably this refers only to the section on Chinese soil. The frontier section between Laokai and Mengtze was taken up by the Chinese more than two years ago, but the portion between Mengtze and Kunming (Yunnan-fu), and the branch from Mengtze to Shihping, are understood to have been worked by the Free Chinese authorities as part of their metre-gauge system based on Kunming.

Alaska Transport Connections

The Premier of British Columbia told members of the Northwest Trade Association, meeting at Vancouver on June 26,

that the British Columbia Government was prepared to spend \$6,000,000 on the immediate construction of a road linking the southern part of the province with the Alaska Highway in the Peace River district. Earlier reference to this was made in our July 16 issue, page 70.

He also announced that British Columbia was willing to spend between \$6,000,000 and \$7,000,000 on a railway connection between Quesnel and Prince George, B.C., if the United States military authorities would undertake construction of a railway north of Prince George. The Pacific Great Eastern Railway, owned by the British Columbia Government, now runs from Squamish, B.C. (near Vancouver), to Quesnel.

C.N.R. Summer Resorts

As a result of a survey of wartime economy in Canada, including man-power, food, and transport, the Canadian National Railways decided not to open for the 1943 summer season the holiday resorts they own and operate. The establishments affected are Jasper Park Lodge in Jasper National Park, Canadian Rockies; Minaki Lodge in the Lake-of-the-Woods district of Ontario; and Pictou Lodge at the edge of Northumberland Strait, Nova Scotia. The three lodges provided accommodation for 1,000 guests; Jasper Park Lodge alone can take 650.

Fuel Rationing in Chile

Chile, like Brazil, is dependent upon outside sources for petrol, and fuel-oil, and upon foreign-owned tankers for its conveyance. Supplies are restricted in the main to use

by strategic industries and essential civilian users. Petrol rationing has already resulted in the withdrawal from the streets of Santiago of about 15,000 private motor-cars and 1,500 taxis. Of about 8,500 motor vehicles still permitted to work in the Chilean capital, 3,400 are motor lorries, 2,322 are taxis, 970 are motorbuses, and only 1,800 are private cars. Fuel shortage has resulted in a considerable increase in the use of bicycles; it is estimated that some 15,000 bicycles are being used in Santiago at present.

Borrowed Buses in Chile

Buses and trams requisitioned by the Chilean Government in Valparaiso and Santiago last February are to be returned to their proprietors under a Decree signed recently by President Rios. The owners drew a percentage of the receipts during the period of requisitioning, which was an experimental measure. It may be recalled that plans for the nationalisation of the tramways in the same two cities were prepared towards the end of last year, as recorded in our issue of December 11, 1942, page 590.

Vegetable-Oil Lubricants in India

As it is becoming increasingly difficult to import supplies of mineral oils, India is paying a considerable amount of attention to the use as lubricants of domestic vegetable oils, such as castor and rape. At a recent meeting of the Transport Advisory Council it was reported that of late there had been a marked tendency toward increased consumption of these substitute oils. India's present annual consumption

of vegetable oils as lubricants was stated to be 8,000 tons of castor oil and 1,500 tons of blown rape oil by the railways, and 6,000 tons in sugar and ginning factories and in oil, rice, and other mills. If vegetable oils were to be substituted for mineral oils in all applications for which they are suitable, 46,000 tons annually would be used. Large-scale tests have been made of 100 per cent. vegetable-oil lubricants and of various blends. Well-refined castor oil has been proved a first-class lubricant for locomotives, the bearings of steam engines, and heavy gears. Blends of mineral oil and blown rape oil are used as axle lubricants for railway passenger carriages and for goods wagons, and as marine-engine oils. Blends of mineral and peanut oil are used for the lubrication of compressors, gas engines, and looms. During 1941, arrangements were made to substitute 8,000 tons of castor and blown rape oils for mineral axle oils on the Indian railways. This use has absorbed practically all the available production of suitable castor oil. Various blends of castor and rape oils have been tested in workshops and have given satisfactory results as lubricants for gears and bearings, and as cylinder oils for steam engines. Trial runs of over 2,500 miles by motorcars using blends of castor oil with either peanut or rape oil for lubricants have shown satisfactory results. The petroleum companies, it is reported, are considering the possibility of marketing mixed blends of vegetable and mineral oils, for the production of which they are likely to need from 12,000 to 15,000 tons of castor and rape oils.

German Transit Through Sweden

It was officially announced in Stockholm on August 5 that the Swedish Government had cancelled the transit traffic agreement with Germany. The agreement allowed for the passage of unarmed German soldiers across Sweden to and from Norway. Transit of war material is to cease on August 15, and of soldiers by August 20. This action follows closely the strong unofficial reports which we recorded in our issue of July 30, page 117, when we stated that "technical difficulties" had then prevented the transit trains from running on a number of occasions. During the campaign in Norway in April and May, 1940, Sweden refused all transport of war materials from Sweden to Norway. According to international law, the Swedish Government was entitled to establish such a prohibition, which would apply to all parties. Many Norwegians were disappointed, however, that the Swedes treated the Norwegians and the German aggressors alike. When the campaign in Norway ended, the Swedish Government announced on July 6, 1940, that former restrictions on the transit of war materials had been abolished, and that a limited transport of German soldiers, "mostly on leave," would be allowed to and from Norway. On July 15, 1940, the Norwegian Government lodged a protest against this transit traffic, maintaining that the traffic was contrary to international law, which allows only "sick and wounded soldiers" to be transported through neutral territory. The Swedish answer was that, when the Allied Forces and the Norwegian King and Government left Norway, the campaign in Norway had come to an end.

The facilities which Sweden agreed to give for so-called German "leave-traffic" from and to Norway, meant that German troops stationed in Norway would be allowed to travel to Germany on leave

and back to Norway in special trains over the Swedish railways. The number of soldiers travelling to Norway by this route might not in any one week exceed the number leaving the country, so that reinforcement of the German troops in Norway could not be conveyed there *via* Sweden. In fact, it has been stated by Sweden that, for most of the time the agreement has been in force, there has been a surplus in the direction away from Norway. Swedish control officers were placed on board the German troop trains to check numbers, and also to see that the trains were not used by the Germans for non-military traffic. Rumours that Norwegian prisoners had been brought to Germany on board these trains have been denied emphatically by the Swedish Government.

At the same time that this agreement was made, arrangements were also concluded for the transit of German goods over the Swedish railways. Recently, the Swedish Government maintained that the goods traffic taking place was limited by the strain under which the Swedish railway system were working as a result of the difficult fuel situation, and also that, in so far as the transit of war material was allowed, this was effected in accordance with the internationally-accepted rules. A good deal of transit traffic of goods seems to have taken place between Germany and Finland, and a certain amount also between Norway and Finland. It may be remembered that one division of German troops was allowed to pass from Norway to Finland after the outbreak of the second Finnish-Russian war in the summer of 1941, but the Swedish Government stressed at the time that this was isolated concession, and, in fact, so far as is known, it was not repeated. There has been no "leave traffic" between Finland and Germany.

Earlier references to this transit traffic, and to the growing popular dislike for it

in Sweden, were made in our issues of February 5 (page 150), and May 14 (page 489). The latter recorded the routes used as Trelleborg to Bräcke and Storlien (for Trondheim); Trelleborg to Bräcke, Boden, and Riksgränsen (for Narvik); Trelleborg to Bräcke, Boden, and Haparanda (for Finland); and Haparanda to Boden and Riksgränsen, or Haparanda to Boden, Bräcke, and Storlien (for Finland-Norway traffic). In addition, it seems from Norwegian sources that another "horse-shoe" service has been maintained, which may have been of greater direct military importance. This traffic was carried by two trains from Trondheim to Narvik, *via* Storlien, and it is on this line that the Swedish condition that the soldiers must not carry arms has not always been adhered to, according to Norwegian contentions. It is also said that the Swedish condition that "soldiers on leave" should not carry arms, has been nullified on other routes by the fact that their arms could be transported in special vans or on separate trains. More important from the military point of view is, of course, the transit of war materials to Norway. It is said that heavy artillery from the Maginot Line has been transported to western and northern Norway over the Swedish railways. Also, German bomber squadrons in northern Norway are stated to have received supplies of petrol in this way.

There is no way of knowing how many of the German Forces have travelled through Sweden on leave, but it is estimated that between 12,000 and 15,000 were carried across Sweden every week under the arrangement. According to official Swedish information, every day one train in each direction passed on the route from Trelleborg to Oslo, *via* Kornsjo, and every week three trains passed both ways on the route from Trelleborg to Narvik.

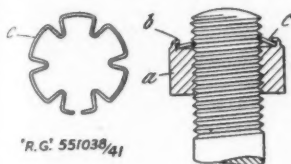
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ABSTRACTS OF RECENT PATENTS*

551,038. Lock Nuts

W. A. Addis, 65, Deans Road, Hanwell, London, W.7. (Application date: November 28, 1941).

A recess is turned in the top of the nut *a*, to leave a lip *b*, within which is placed a



'R.G.' 551038/41

locking wire *c*, bent to form inwardly directed tongues and secured in position by punching the lip *b* inwards at intervals, or it may be spun over. When the nut is screwed on to a bolt the tongues of the locking wire engage the threads and exert sufficient frictional resistance to prevent unscrewing of the nut.—(Accepted February 4, 1943).

541,662. Locomotives

Aktiebolaget Svenska Kulagerfabriken, 17, Artillerigatan, Gothenburg, Sweden. (Application date: June 3, 1940).

The distance between the axes of rotation of coupled wheels is accommodated to the lengths of the coupling rods. In Fig. 2 the distance between two adjacent crank-pins is designated by *m*, and the distance between the respective wheel axes

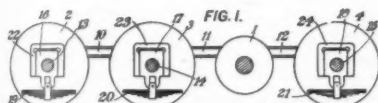


FIG. 1.

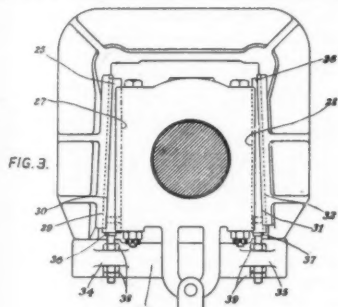


FIG. 3.

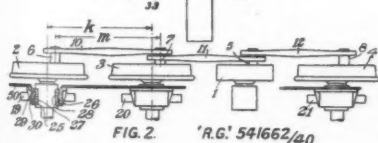


FIG. 2. 'R.G.' 541662/40

is designated by *k*. As soon as the coupling-rods are manufactured the distances *m* are fixed, but the distances *k* cannot be determined from the beginning with the great degree of accuracy desired, but may vary substantially on account of the difficulty in manufacturing the framework with accurate measurements. If the transmission of movement is to take place smoothly, it is, however, necessary that the distances *k* and *m* shall correspond very closely. This result is achieved by making the bearings of the wheels adjustable in the direction of length of the locomotive, so

that the distances *k* between the centres of the adjacent wheels can be accommodated to the fixed distances *m* between the heads of a coupling-rod. Between each bearing-box and its hornblock there are inserted on both sides wedges 25, 26 constituting keys which are shown in Fig. 3 and in cross-section at the left-hand of Fig. 2. The wedges are inserted in notches in the side faces of the bearing-box, the surfaces 27, 28 of the wedges forming sliding faces for the bearing-box.—(Accepted December 5, 1941).

550,917. Signalling Systems

Westinghouse Brake & Signal Co. Ltd., and R. M. Macgregor, 82, York Way, Kings Cross, London, N.1. (Application date: March 3, 1941).

This invention relates to code-transmitting apparatus for track signalling systems, and provides a static or purely electrical apparatus whereby the characteristic of the code can be readily varied as desired. An oscillation circuit, Fig. 1, containing an inductance *L*, and capacity *C*, is connected to the terminals *S* of the alternating current supply from which the apparatus is operated, and ohmic resist-

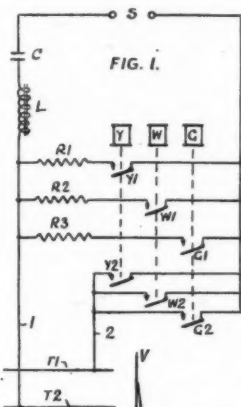


FIG. 1.

'R.G.' 550917/41

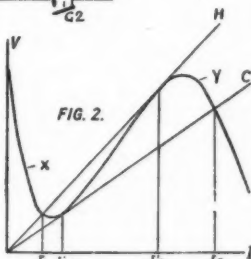


FIG. 2.

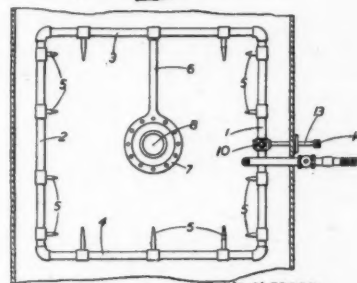
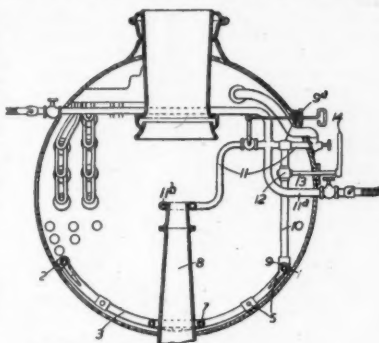
ances *R1*, *R2*, *R3*, each having different heating and cooling characteristics corresponding to a particular code, are arranged to be selectively included in the circuit according to the code required. The oscillation circuit has a current-voltage characteristic of the kind indicated by the curve *X*, *Y*, Fig. 2, from which it will be seen that over the portion *Y* of this curve the circuit has a rising or positive current-voltage characteristic. The lines *H* and *C* give the current-voltage characteristics of the resistance in its hot and cold conditions respectively.—(Accepted February 1, 1943).

550,411. Locomotive Ash Ejector

D. McNulty, 45, Warton Terrace, Chillingham Road, Newcastle-on-Tyne. (Application date: January 12, 1942).

Ash is removed from the smoke box of a locomotive boiler by the action of steam

jets directed along the lower portion of the smoke box by nozzles 5, carried on steam pipes 1, 2, 3, 4, and by a jet ring 7 arranged



'R.G.' 550411/42

around the lower end of the blast pipe 8. Admission of steam to the nozzles and jet ring is controlled by a valve 12, the spindle of which passes through the smoke box wall and is connected to operating means in the driver's cabin.—(Accepted January 6, 1943).

COMPLETE SPECIFICATIONS ACCEPTED

550,213. J. W. Scott. Means for application to road and rail steam vehicles for dispersing snow.

550,363. Haywood, T. E., Haywood, T. A. E., Haywood, J. T., and Haywood, P. F. Signal arms.

550,411. McNulty, D. Device for removing ash from the smokebox of a locomotive boiler.

550,529. Mitchell, F. G., and Young, P. C. Marshalling yards for railway vehicles.

550,685. Downes, D. G. Panel type of control means for railway signalling systems.

550,862. Westinghouse Brake & Signal Co. Ltd., and Venning, C. F. D. Railway traffic-controlling apparatus.

550,917. Westinghouse Brake & Signal Co. Ltd., and MacGregor, R. M. Code-transmitting apparatus for signalling systems.

551,038. Addis, W. A. Nuts.

551,108. Barlow & Co. Ltd., H. J., and Barlow, H. J. Manufacture of castellated nuts.

551,214. Oddie Lock Nuts Limited, and Oddie, F. A. Nuts.

NEW BRAZILIAN BRANCH.—Progress is reported in the construction of the branch of the Parana-Santa Catarina Railway from Iraty to Guarapuava. Some 25 km. (15½ miles) are stated to have been opened to public traffic recently, with two stations, namely, Cerro do Leao and Inacio Martins.

* These abridgments of recently published specifications are specially compiled for *The Railway Gazette* by permission of the Controller of His Majesty's Stationery Office. The full specifications can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, price 1s.

Questions in Parliament

Bank Holiday Week-end Travel

Major A. M. Lyons (Leicester East—C.) on August 4 asked the Parliamentary Secretary to the Ministry of War Transport if he would make a statement on the amount of public passenger travel over the last week-end; and how many additional, special, or duplicate passenger trains were run over the main-line railways during that period.

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary, Ministry of War Transport): I am awaiting a detailed report from the railway companies on their passenger traffic during the August Bank Holiday week-end.

Major Lyons: At the same time would the Parliamentary Secretary try to ascertain the information and let me know in a letter the amount of money which was spent by the railway companies in asking people not to travel?

Mr. Noel-Baker: I will try to get the figure and will let Major Lyons know.

Refreshment on Long Journeys

Mr. J. J. Tinker (Leigh—Lab.) on August 4 asked the Parliamentary Secretary to the Ministry of War Transport if he was aware of the serious inconvenience caused to passengers on long railway journeys that when the train arrived at one of the large stations on the way, there were not adequate means to provide them with liquid refreshment; and would he consult with the railway companies to provide a supply of good drinking water easily accessible to the passengers.

Mr. Noel-Baker: I regret that it has not been possible to make wholly satisfactory arrangements for providing passengers on long-distance trains with liquid refreshment, including water. The supplies and the staffing of tea-rooms and refreshment rooms have, however, been greatly improved in the last twelve months; drinking water can be obtained in these refreshment rooms at all important stations; drinking fountains and taps on station platforms are prominently marked for the guidance of passengers; new water supplies have been installed at some stations. If Mr. Tinker has any particular places in mind, I will see whether anything further can be done.

Mr. Tinker: Yes, Sir, and I can draw the Parliamentary Secretary's attention to two instances in particular. They are Rugby and Crewe, to which I travel regularly. I see no signs there at all of drinking water. All I am asking is that this matter should be examined. It is a terrible nuisance in these times that no one should be able to get a drink of water in our refreshment rooms.

Mr. Noel-Baker: My experience of the refreshment rooms at Crewe and Rugby is that they have been greatly improved. I will certainly look into the question of the supply of drinking water.

Mr. Edmund Harvey (English Universities—Ind.): Would the Parliamentary Secretary also look into the cases of Peterborough and Grantham on the London & North Eastern Railway?

There was no reply.

Long-Distance Train Services

Mr. G. Mathers (Linlithgow—Lab.) on July 29 asked the Parliamentary Secretary to the Ministry of War Transport whether any decision had yet been reached as to the provision of additional trains on the long-distance services.

Mr. Noel-Baker stated in a written answer: As I foreshadowed in a statement which I made on June 9, the Minister of

War Transport has considered the possibility of strengthening certain long-distance services on which, due to an increase of Service and other essential travel, overcrowding is constant and serious. As a result he has authorised some additional trains to be run on certain days of the week, if occasion requires, on certain routes serving, in the main, important industrial areas. I would remind Mr. Mathers that these additional trains may be taken off again without warning, if war conditions so demand. The Minister of War Transport has authorised also the provision of certain special trains in connection with works holidays, in cases where there are large numbers of transferred workers returning to their homes under the Ministry of Labour's assisted travel scheme and where the traffic can most conveniently be carried by a special train. These trains will not be provided during the Bank Holiday period.

First Class Coaches

Mr. Evelyn Walkden (Doncaster—Lab.) on August 4 asked the Parliamentary Secretary to the Ministry of War Transport whether the London & North Eastern Railway Company notified him of its intention to convert certain pre-war third class coaches into first class carriages; if he was aware that a large amount of this type of rolling stock, with the addition of antimacassars and carpets, was now re-labelled as first class and offered as accommodation for first class passengers; and would he put an end to this practice.

Mr. Noel-Baker: The coaches to which Mr. Walkden refers have one door only at each end of the corridor side. This makes it possible to provide better lighting in the blackout. When white lighting was authorised in 1940 for main-line trains, the London & North Eastern Railway had not enough first class coaches of this type to meet its needs; it therefore adapted a few new third class coaches and used them as first class accommodation. I do not think I should be justified in asking the company to re-convert these carriages to third class, since to do so would involve using other first class stock which could not be so adequately lighted.

Mr. Walkden: Is there any real reason to continue this sort of camouflage, which only encourages more and more people to try to obtain first class privileges? Will the Parliamentary Secretary now consider advising the railways to abolish the sale of first class tickets altogether?

There were cries of "No."

Mr. Walkden: Why not?

Mr. Noel-Baker: That is a different question, but if Mr. Walkden will put it on the Paper, I will answer it.

Arrangements for Kent Hop-pickers

Mr. W. Thorne (Plaistow—Lab.) on August 3 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware that hop-pickers would be wanted earlier this year than last year, and had arrangements been made for special trains on the Southern Railway to take them from London to the Kent hop-fields.

Mr. Noel-Baker stated in a written answer: The answer of both parts of Mr. Thorne's question is: Yes, sir.

Tidal Basin Station

Mr. Will Thorne (Plaistow—Lab.) on August 4 asked the Parliamentary Secretary to the Ministry of War Transport why the Tidal Basin Station on the London & North Eastern Railway, in the borough of West Ham, had been closed, as the station served a big working population; and what action he intended taking in the matter.

Mr. Noel-Baker: The number of passen-

ger journeys made from this station in 1942 was only 4 per cent. of the number made in 1939. The Regional Transport Commissioner ascertained that the few passengers still using the station could be carried by the existing road services. The station was, therefore, closed, in order that the staff of seven might be transferred to other places where additional personnel was urgently required.

Mr. Thorne: Is the Parliamentary Secretary aware that this station is right in the middle of a working, factory, and dock population, and that passengers have now to walk three-quarters of a mile?

Mr. Noel-Baker: That is not my information. During 1942 the traffic was so small that passenger receipts were under £1 a day. I do not think we can justify keeping seven men on the station for that traffic. If the traffic is increased and Mr. Thorne will give me the facts I will look into them again.

Mr. Evelyn Walkden (Doncaster—Lab.): Was it not waste on the part of the railway companies to keep so many people on that job?

There was no reply.

Treforest Trading Estate Halt

Mr. A. Pearson (Pontypridd—Lab.) on August 3 asked the Parliamentary Secretary to the Ministry of War Transport whether he would take steps to facilitate the opening of the additional exit at the Treforest Trading Estate Halt.

Mr. Noel-Baker wrote in reply: The whole of the arrangements at this halt were completed and brought into use on July 24.

Wounded Servicemen

Major-General Sir Alfred Knox (Wycombe—C.) on July 29 asked the Parliamentary Secretary to the Ministry of War Transport, what machinery existed for the allocation of suitable accommodation to sick or wounded servicemen when moved by rail from hospital to their homes or to convalescent homes; to whom application should be made in order to reserve such accommodation; and whether notification of the reservation could be made, at all events, 24 hr. before the departure of the train.

Mr. Noel-Baker: When members of the Services are moved from one hospital to another, or from a hospital to a convalescent home, the necessary arrangements are made by the Movement Control of the service concerned. For this purpose the officers of the Movement Controls communicate direct with the railway companies. This system does not apply to men who are returning to their homes, when they have been discharged from hospital and are fit to travel.

Taxi Queues at London Termini

Mr. G. R. Strauss (Lambeth North—Lab.) on July 28 asked the Home Secretary whether he would introduce at all London railway termini the system now operating at some of them, whereby passengers requiring taxis had to wait in turn and an attempt was made to arrange that several parties going in the same direction should share a taxi.

Mr. Herbert Morrison (Home Secretary) stated in a written answer: The Commissioner of Metropolitan Police has been in communication with the railway companies from time to time on the first point to which Mr. Strauss refers, and I am informed that the system of queues for taxis is now in operation at all London termini where there is need for them. The commissioner also has recently suggested to the companies concerned that notices urging the public to share cabs so far as possible should be prominently exhibited at the queuing places, and such notices are being put up at certain stations. I understand that it has

been the practice of railway staffs to encourage the sharing of cabs; and the public can and do make such arrangements on their own initiative.

Road-Haulage Rates for Milk

Mr. J. H. Wootton-Davies (Heywood & Radcliffe—C.) on July 21 asked the Parliamentary Secretary to the Ministry of War Transport whether, in view of the importance to his department of accurate knowledge of haulage rates, he would ascertain from the Milk Marketing Board, and publish, the rates it had approved for the carriage of milk in different parts of the country.

Mr. P. J. Noel-Baker in a written answer stated: Road-haulage rates for the collection of milk are settled by agreement between the Milk Marketing Board and the hauliers concerned, or, if no agreement is reached, by arbitration. The rates are not, of course, uniform; each rate must be settled by reference to the circumstances of the case, and the costs involved. I do not think, however, that there are any departmental reasons which would justify the labour involved in the publication of the large number of individual rates involved.

"Production & Engineering Bulletin"

Mr. R. R. Stokes (Ipswich—Lab.) on July 27 asked the Minister of Labour how many copies of the publication *Production & Engineering Bulletin* are issued each month; how much it costs to produce; and how many people are engaged in its production?

Mr. Bevin (Minister of Labour): Over the past three months the average distribution of the *Production & Engineering Bulletin* has been 57,241 copies. The average cost of printing each issue, including paper and photographs, has been £785. There is an editorial staff of five.

Regional Transport Commissioners

Sir Douglas Thomson (Aberdeen South—C.) on August 4 asked the Parliamentary Secretary to the Ministry of War Transport whether, in view of the appointment of the Director of Alternative Motor Fuels as Regional Transport Commissioner for the Eastern Region, it was proposed to abolish the former office.

Mr. Noel-Baker: As I informed Sir Douglas Thomson in answer to a question on June 29, the whole position is being reviewed and new arrangements will be made shortly.

Sir D. Thomson: Can the Parliamentary Secretary assure the House that the creation of this post of Director of Alternative Motor Fuels is not designed merely to find a job for someone?

Mr. Noel-Baker: I can certainly give that assurance.

Major A. M. Lyons (Leicester East—C.): Can the Parliamentary Secretary say whether the gentleman appointed to this post in the Eastern Counties is getting both appointments, one in London and the other in the Eastern Counties?

Mr. Noel-Baker: Yes, but that is at our request. It is very hard work for him, but it is to the public advantage.

Major Manningham-Buller on August 4 asked the Parliamentary Secretary to the Ministry of War Transport whether Regional Transport Commissioners, other than the Commissioner for the Eastern Region, were allowed by their terms of employment to hold other offices.

Mr. Noel-Baker: Regional Transport Commissioners are required by the terms of their appointment to devote the whole of their time to the duties of their post, but, as a temporary arrangement, the recently appointed Commissioner for the Eastern

Region has continued to supervise a piece of special work on which he was previously engaged. As I have just informed Sir D. Thomson, this arrangement will shortly come to an end.

Captain J. F. E. Crowder (Finchley—C.) on August 4 asked the Parliamentary Secretary to the Ministry of War Transport what qualifications the Regional Transport Commissioner for the Eastern Region had for this post.

Mr. Noel-Baker: Sir Alfred Faulkner has had many years of administrative experience, including experience in various branches of transport.

Captain Crowder: Can the Parliamentary Secretary say what is the age of this gentleman?

Mr. Noel-Baker: Not without notice, but I think he is of suitable age for the duty he is performing.

West Yorkshire Bus Services

Mr. Ivor Thomas (Keighley—Lab.) on August 4 asked the Parliamentary Secretary to the Ministry of War Transport whether he had considered the protest of the Keighley Borough Council and other expressions of local opinion against the withdrawal of contract tickets by the West Yorkshire Road Car Co. Ltd. and whether he was now prepared to restore such tickets.

Mr. R. H. Turton (Thirsk and Malton—C.) on August 4 also asked the Parliamentary Secretary to the Ministry of War Transport whether he had now reconsidered the effect of the action of the West Yorkshire Road Car Co. Ltd., and other bus operators in withdrawing unlimited travel facilities; and whether he would now issue instructions to enable workers to make necessary journeys in connection with their work at no greater expense than before the unlimited travel facilities were withdrawn.

Mr. Noel-Baker: I have carefully reconsidered the withdrawal of unlimited travel tickets on bus services in Yorkshire, and I have done so in the light of the representations made by Mr. Thomas and Mr. Turton and of the expressions of local opinion which I have received. As I have informed Mr. Thomas and Mr. Turton, certain changes in the new fare system have been made, in order to meet the convenience of regular passengers. I hope that, with these changes, the new system will help to discourage unnecessary travel, without imposing any hardship on regular travellers making essential journeys in connection with their work. The need to discourage unnecessary travel is so imperative that I am afraid I do not think it is wise or desirable to restore unlimited travel tickets.

Mr. Turton: Is not the effect of the present situation that many workers are paying more than double the fares they previously paid and not a single bus service has been curtailed, and the bus companies are receiving extra profits without giving any compensating advantages?

Mr. Noel-Baker: No, sir. I think Mr. Turton is under a misapprehension. I should like to assure him that the question of profit has nothing whatever to do with it. This measure was introduced on our instructions and not on the initiative of the bus company. There have been economies in transport both by the taking off of duplicate buses at non-peak hours and by the reduction of overcrowding, which is singularly undesirable from a transport point of view. I think most workers are paying only slightly more if they go home to their lunch. If they do not go home to lunch, if there is any increase at all it is very slight.

Mr. Thomas: Is the Parliamentary Secretary aware that in my own constituency it is not possible to accommodate

the contract holders at lunch-time and therefore that there can be no curtailment of travelling?

Mr. Noel-Baker: According to the information I have received, there is spare capacity in the existing British Restaurant, and if necessary the authorities would be willing to open another.

Mr. R. J. Taylor (Morpeth—Lab.): Is the Parliamentary Secretary aware that he has not reduced facilities by a single journey, and the only thing he has done, in spite of his assurances, is to put unlimited sums of money into the pockets of the bus company?

Mr. Noel-Baker: At the instance of Mr. Taylor I have examined this question many times, and I assure him he is wrong.

Mr. W. S. Cluse (Islington South—Lab.): Is it not a fact that in London normal travellers have been paying increased fares as the result of this reorganisation?

Mr. Noel-Baker did not reply.

Mr. Turton gave notice that, in view of the unsatisfactory nature of the reply, he would raise the matter on the adjournment.

C.N.R. Co-operative Movement

Speaking at the opening session of the thirteenth annual meeting of the System Committee of the Maintenance of Way Co-operative Movement, Canadian National Railways, recently, Mr. R. C. Vaughan, Chairman & President, C.N.R., said that they on the National system were proud of their co-operative movement. They believed it had meant much to the railway and to the men.

The system committee is concerned with working conditions, materials, and the methods of work practised by the 21,700 men employed on the permanent way of the C.N.R.

Continuing his speech, Mr. Vaughan stressed the fact that those on the home front had a tremendous responsibility for the operation and maintenance in safe condition of the railway, of which the foundation was track. He realised the heroic efforts necessary to meet the present difficult situation, and all had reason to be grateful for the contributions made by the C.N.R. to the war effort. The winter of 1942-43 had been the most difficult in the history of the company; during the period January to April last it had spent \$3,368,334 on the removal of snow and ice, over double the amount which had been spent for the same purpose in the first four months of 1942.

Referring to difficulties concerning the acquisition of material, and to the increasing costs thereof, Mr. Vaughan said that the C.N.R. should, and would, spend considerably more at the present time if labour and material were more plentiful, because the roadbed was under a severe strain on account of heavy traffic.

In reply to Mr. Vaughan, Mr. F. J. Fljoldal, President Emeritus of the Brotherhood of Maintenance of Way Employees, which has 180,000 members, stressed the importance of the co-operative movement initiated on the Canadian National system, which had proved very successful. Speaking of the history of the movement, Mr. Fljoldal noted that the first agreement with the C.N.R., made 38 years ago, and founded on mutual respect, had been maintained. War was bringing about greater co-operation, and if the latter was good in wartime it certainly should be so in times of peace.

Notes and News

Dublin United Transport Co. Ltd.—An interim dividend of 3 per cent., less tax, is payable on August 28.

Port of London Charges.—The Minister of War Transport on July 23 made "The Port of London (Increase of Charges) (Amendment) Order, 1943."

German Light Railway.—Another German light railway to show increased traffics for 1942 is the Kleinbahn A.G. Frankfurt (Mein)—Königstein. This line connects Frankfurt-on-Main (Höchst Station) with Königstein (Taunus). It belongs to the group known as the Verkehrswesen A.G.

Richard Thomas & Co. Ltd.—The directors recommend in addition to the fixed dividend of 6½ per cent., less tax, already paid, a further dividend of 3½ per cent., less tax, on the participating preference shares, and a dividend of 10 per cent., less tax, on the ordinary shares, in respect of the year ended March 31, 1943.

Reading Trolleybus Extension Proposal.—Reading Corporation is applying to the Minister of War Transport for a Direction and Order under the Defence (General) Regulations, 1939, to enable it to operate a service of trolley vehicles for a distance of 6 furlongs or thereabouts along the Oxford Road from the junction with Norcot Road to the junction with Kentwood Hill.

L.M.S.R. Rating Assessment.—In a circular to the rating authorities and county valuation committees concerned, the Railway Assessment Authority gives particulars relating to the draft of the third railway valuation roll for the third quinquennial period (April 1, 1941, to March 31, 1946) so far as it relates to the London Midland & Scottish Railway. The average net receipts of the undertaking as a whole in England and Wales for the five accounting years 1935-39, as entered in the draft roll, are £11,872,438. The cumulo, entered at £1,747,573, compares with £1,500,000 in the second roll, and represents an increase of approximately 16½ per cent. Of the new cumulo of £1,747,573, there has been allocated to the principal undertaking

£1,725,883, to the docks £18,665, and to the canals £3,025. Of the sum of £1,725,883, there has been allocated to Class A as a whole £1,401,414 and to Class B as a whole £324,469.

Argentine Railways and Exchange.—Mr. Sandford Poole in the course of his address at the recent meeting of the Trustees Corporation claimed that the exchange regulations enforced for years past by the Government of Argentina on the British-owned railways in that country constituted a tax on them which was in direct conflict with the Mitre Law. He urged the new Argentine Government to remove this unreasonable levy on remittances.

Grand Canal Company.—An Order of the Ministry of Industry & Commerce authorises the Grand Canal Company (Eire) to increase its maximum rates, tolls, dues, and charges by approximately five per cent. The cost of operating the canal has increased and it is necessary to supplement the revenues of the company. An interim dividend of 1 per cent. has recently been announced, the same as a year ago. For the whole year 1942 the dividend was 2½ per cent.

Locomotive Valve Gears Limited.—In accordance with Section 245 of the Companies Act, 1929, a general meeting of this company (now in voluntary liquidation) and a meeting of the creditors will be held at the offices of Messrs. Knill, Padgham & Grande, 7, The Parade, Bridge Road, Maidenhead, Berks., on Monday, October 18, the contributories at 9 a.m. and the creditors at 9.15 a.m., to consider the accounts of the liquidator showing how the winding-up of the company has been conducted and its property disposed of.

Guest, Keen & Nettlefolds Limited.—Accounts for the year to March 31, 1943, show a profit, after taxation, of £1,272,961. Deducting £54,335 debenture interest, £39,832 for redemption of debenture stock, and £275,000 for depreciation, leaves a net profit of £903,774. From this the directors have transferred £22,000 (£46,000) for war damage insurance, £50,000 (same) to war contingencies account, including deferred repairs, and £150,000 (£100,000) to reserve fund, which has also been credited with £44,250 arising from debenture redemption.

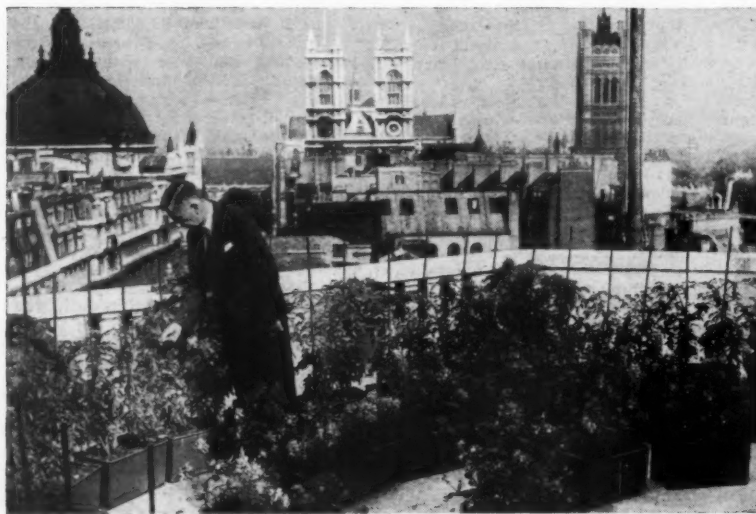
The directors have recommended final dividends, free of tax, on the 5 per cent. first preference and second preference stocks, and a final dividend on the ordinary stock of 6 per cent., making 10 per cent., less tax, for the year. The carry forward is £527,629 (£495,458).

Northern Ireland Railway Rate Increases.—The railways situate wholly or partly in Northern Ireland, apart from the Belfast & County Down, namely, the County Donegal; the Dundalk, Newry & Greenore; the Great Northern; the Londonderry & Lough Swilly; the L.M.S.R.

British and Irish Railway Stocks and Shares

Stocks	Highest 1942	Lowest 1942	Prices	
			Aug. 6, 1943	Rise/ Fall
G.W.R.				
Cons. Ord.	58	39	61½	+ 1½
5% Con. Pref.	115½	105½	112	— ½
5% Red. Pref. (1950) ..	109½	103½	107	—
5% Rt. Charge	133½	123½	126½	—
5% Cons. Guar.	130½	121½	123½	—
4% Deb.	117	105	109	—
4½% Deb.	118	108	110½	—
4½% Deb.	125	113	118½	—
5% Deb.	137	127	129	—
2½ Deb.	77	70	75½	—
L.M.S.R.				
Ord.	28½	16½	33½	+ 1½
4% Pref. (1923)	63½	50½	62	—
4% Pref.	76½	67½	75½	— 1
5% Red. Pref. (1955) ..	103½	94½	103½	—
4% Guar.	104½	97½	100½	— 1
4% Deb.	108½	101½	104½	—
5% Red. Deb. (1952) ..	111	107½	109½	—
L.N.E.R.				
5% Pref. Ord.	9½	2½	10	+ ½
Def. Ord.	5	1½	4½	— ½
4% First Pref.	62	49½	61½	— 1
4% Second Pref.	32½	18½	34½	+ ½
5% Red. Pref. (1955) ..	95½	79	96½	— 1
4% First Guar.	98	88	97½	— ½
4% Second Guar.	90	78	90½	— 1
3% Deb.	85	76	80½	—
4% Deb.	106½	100½	103	—
5% Red. Deb. (1947) ..	106	103	104	—
4% Sinking Fund Red. Deb.	106	102½	105½	—
SOUTHERN				
Pref. Ord.	77	61½	76	+ 1
Def. Ord.	23½	14½	24½	+ ½
5% Pref.	112½	104	111	—
5% Red. Pref. (1964) ..	110½	105½	112½	—
5% Guar. Pref.	131	121½	123½	—
5% Red. Guar. Pref. (1957) ..	115½	109½	113½	—
4% Deb.	116	104½	108	—
5% Deb.	134	125½	129½	—
4% Red. Deb. (1962- 67) ..	110½	106	107½	—
4% Red. Deb. (1970- 80) ..	111	106½	107½	—
FORTH BRIDGE				
4% Deb.	109½	108	106	—
4% Guar.	105½	100	104½	—
L.P.T.B.				
4½% "A"	122½	111	117½	—
5% "A"	131½	122	127½	—
3% Guar. (1967-72) ..	95½	97½	99	—
5% "B"	121	111½	115½	—
"C"	56½	38	70	+ ½
MERSEY				
Ord.	27½	20½	32	—
3% Perp. Pref.	61½	56½	61	—
4% Perp. Deb.	102½	99½	103	—
3% Perp. Deb.	80½	76	78	—
IRELAND				
BELFAST & C.D.				
Ord.	9	4	9	—
G. NORTHERN				
Ord.	29½	12½	16½	— 2½
G. SOUTHERN				
Ord.	25	10	10½	—
Pref.	29	12½	16	— ½
Guar.	53	35½	35	—
Deb.	71½	55½	59	—

§ ex-dividend



Mr. V. A. M. Robertson, Engineer-in-Chief, London Passenger Transport Board, on the garden he has laid out on the roof of the London headquarters of the board

(N.C.C.): the Sligo, Leitrim & Northern Counties; and the Strabane & Letterkenny, give notice of an increase as from September 1, of approximately 8 per cent. on the rates for goods train traffic other than coal and livestock, and of approximately 9 per cent. on the rates for coal and livestock traffic by merchandise trains and on rates for perishable and other merchandise traffic by passenger trains. These increases are to apply to through traffic between any of the railways above-mentioned and also to local traffic, with the exception of the L.M.S.R. (N.C.C.). The notice is given pursuant to the Railway & Canal Traffic Act, 1888, and to the Order of the Board of Trade thereunder, dated January 25, 1889.

Aldershot & District Traction Co. Ltd.—This company is controlled jointly by the Southern Railway Company and by B.E.T. Omnibus Services Limited. It owns and operates 250 buses over a route mileage of approximately 500 miles. For the year ended May 31, 1943, traffic receipts and other revenue amounted to £708,754 (£662,252). After deducting all items chargeable against revenue, including provision for taxation and depreciation, and transferring £10,000 to general reserve, there remained a profit of £20,008, to which has to be added £31,666 brought forward, making £51,674. The dividend for the year is again 10 per cent., and the amount carried forward is £39,174.

Silentbloc Limited.—Mr. H. V. Strong, Chairman & Managing Director, in the course of his address at the 8th ordinary general meeting, pointed out that the ratio of taxation to net profits before taxation had risen from 88.43 per cent. in the previous year to above 93 per cent. for the year under review. He made some strong comments on the unjust treatment in the matter of taxation of a young company like this, which had little opportunity to build up strong reserves. The result of this treatment was that nothing was left to finance the needful measures to be taken in research and preparation for an export trade after the war, unless by mulcting shareholders of a return on their capital, equivalent to that enjoyed by them in pre-war days under a substantially lower

cost of living and when the output of the company was but a fraction of to-day's. He could assure them, however, that the company continued to produce efficiently and at low cost, and to maintain a high level of production commensurate with the demands made upon it. The output for the year under review was easily a record. As to the future, the well-being of this company lay in the solidity of its foundations, in the efficiency of a progressive management, and in the acumen and energy which was daily brought to bear. Silentbloc Limited and its subsidiary manufactured highly specialised products in the form of flexible supports, mountings, and couplings concerned with the elimination of vibration and noise, the lessening of wear and tear, and so the reduction of maintenance charges.

Proposed New Chilean Railway.—Although shortages of rolling stock and fuel in Chile are restricting the flow of railway traffic, the construction of new lines has not been suspended, and recently the Central Government has provided funds for building a 40-mile branch railway connecting Lanco (north of Valdivia) with Panguipulli, in the timber area.

Brush Electrical Engineering Co. Ltd.—Continuing the policy of establishing confidence between the directors and management, and employees, the board of the Brush Electrical Engineering Co. Ltd. and its associated companies held a meeting in the staff canteen recently, when Sir Ronald Matthews, J.P., Chairman of the company, addressed a number of representatives of the offices and works on the subject of the company's finance. Among those present were: Mr. A. P. Good, Managing Director, Mr. H. E. Midgley, Captain R. C. Petter, Mr. D. B. Hoseason, Sir Richard Pease, Mr. M. A. Fiennes, and Mr. W. M. Good, Directors. Sir Ronald Matthews referred to the spirit of co-operation and understanding which existed throughout the works, and said that for the creation of that support the greatest possible credit must be given to the works production committee and sub-committees which worked most admirably. Large coloured charts were exhibited showing the allocation of income. One of the charts consisted of a large circle divided into

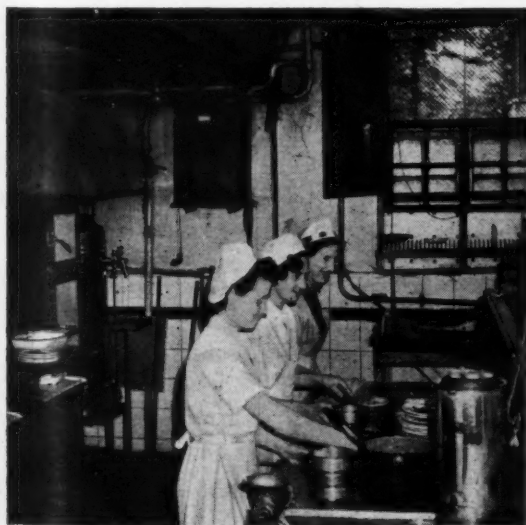
different colours representing allocation on the basis of percentages, and the other a much enlarged £1 note was coloured to represent the same allocations in proportions of a pound.

Accident at Scarborough.—The following official statement, dated August 10, has been issued by the London & North Eastern Railway Company in connection with an accident which occurred in Scarborough Station on that date:—"The L.N.E.R. regrets to announce that about 11 a.m. today the 11.18 a.m. passenger train from Scarborough to Hull, standing in Scarborough Station, was run into by the 9.5 a.m. Hull to Scarborough passenger train. The first coach of the standing train was partially telescoped, and as far as can be ascertained four passengers were killed and 30 injured. Ambulances were quickly summoned and the injured were taken to Scarborough Hospital."

Contracts and Tenders

Below is given a list of orders placed recently by the Egyptian State Railways:—

Guest, Keen & Nettlefolds Limited: Screws.
Morgan Crucible Co. Ltd.: Crucibles.
Rivet Bolt & Nut Co. Ltd.: Rivets.
W. T. Henley's Telegraph Works Co. Ltd.: Wires and cables.
Standard Telephones & Cables Limited: Transformers.
Siemens Brothers & Co. Ltd.: Telephone and telegraphic materials.
Craigpark Electric Cable Co. Ltd.: Cable.
Davis & Timmins Limited: Screws.
P. & W. MacLellan Limited: Steel bars, washers.
Marconi's Wireless Telegraph Co. Ltd.: Wireless equipment.
Monk Bridge Iron & Steel Co. Ltd.: Tyres.
Pilkington Bros. Ltd.: Glasses.
H. J. Skelton & Co. Ltd.: Mild-steel rolled section.
Tomey & Sons Ltd.: Gauge glasses.
T.N. Stores Depot: Coach screws.
Automatic Coil Winder & Electrical Equipment Co. Ltd.: Wireless material.
Norton Grinding Wheel Co. Ltd.: Grinding wheels.
Chloride Electrical Storage Co. Ltd.: Secondary cells.
Automatic Telephone & Electric Co. Ltd.: Telephone and telegraphic materials.



Left: One of the kitchens provided by the London Passenger Transport Board at which containers are filled to provide hot meals for railway permanent way staff. Right: Delivering a hot meal to the staff on the spot from the container

Railway Stock Market

Activity has continued to rule in Stock Exchange markets, and there has been a broadening of business in some sections. Business was less confined to industrial equities with post-war prospects, the majority of which have reached levels at which there are now very small yields on the basis of current dividends. In many directions, securities are only in very moderate supply in the market, and not unnaturally the tendency has been for attention to centre on those which are in good supply. This, and other factors, including the fact that yields on home railway junior stocks are much out of line with the return on industrial and other equity shares, explain the increased demand in evidence for railway junior stocks. Moreover, the view appears to be gaining ground that at this stage the post-war outlook for the main-line railways is probably not any more difficult to assess than that of many important industrial companies whose shares have risen sharply in recent weeks on hopes of enhanced dividend payments after the war. Apart from the extent to which it is considered necessary to continue Government regulations and controls, the dividend outlook for many industrial companies will depend on whether E.P.T. is withdrawn at the end of the war.

It is true that the present upward trend in home-railway junior stocks is attributed

to yield considerations, but it is also due in part to hopeful views of the outlook in the post-war period, assuming, of course, that the railways receive fair treatment in any important decisions affecting transport. Dividends around current rates can be expected until at least one year after the war, and assuming there is then reasonable success in securing full employment of industrial resources, it should be possible to continue to pay dividends at about these rates. All points considered, there seem sound grounds for the belief that home railway securities are still much undervalued in relation to industrial and other equity securities, and that they offer scope for satisfactory appreciation in price. Fluctuations must, of course, be expected from time to time, in accordance with the prevailing trend in the stock and share markets. Compared with a week ago, London Transport "C" has shown a further good rise to 71, the highest level so far reached this year. The advance in this stock has now reduced the yield to $4\frac{1}{2}$ per cent. on the basis of last year's 3 per cent. dividend. It is generally expected that the L.P.T.B. which is, of course, included with the main-line railways in the war-time financial agreement, is unlikely to pay a higher dividend than 3 per cent. during the period of the war. On the other hand, there is reasonable scope for better dividends after the war, and on

this stock they can in normal times range up to $5\frac{1}{2}$ per cent. The fact that London Transport "C" is valued on a considerably lower yield basis than junior stocks of the main-line companies also reflects the assumption that in any case post-war developments are unlikely to involve any important change in the capital structure of London Transport.

As compared with a week ago, Great Western ordinary has improved from 62 to 62½ at the time of writing; the 4 per cent. debentures were maintained at 109, but the 5 per cent. preference was 112 "ex" the half-yearly payment. L.M.S.R. ordinary moved up from 32½ to 33½; the 1923 preference was 62½, and the senior preference 75½. L.N.E.R. second preference was 34½, the first preference 62, and the second guaranteed 90½ x d. Southern deferred has been favoured and on balance moved up from 24½ to 25½; the preferred was 77½, compared with 76½ a week ago. London Transport "C" advanced from 64 to 71.

A better tendency developed in Argentine railway securities; sentiment was assisted by President Ramirez' statements as to the policy of collaboration between Argentina and the U.S.A. Brazilian railway stocks were little changed, but, elsewhere, further gains were recorded in French railway sterling bonds. Canadian Pacifics were under the influence of the statement of the vice-president of the railway that fresh capital may be required to provide for post-war replacements and extensions.

Traffic Table and Stock Prices of Overseas and Foreign Railways

Railways	Miles open	Week ending	Traffic for week		No. of Weeks	Aggregate traffic to date			Shares or stock	Prices			
			Total this year	Inc. or dec. compared with 1941/2		Totals		Increase or decrease		Highest 1942	Lowest 1942	Aug. 6, 1943	Yield % (See p. 10)
						1942/3	1941/2						
South & Central America													
Antofagasta (Chili) & Bolivia	834	1.8.43	32,860	+ 11,160	30	852,790	662,990	+ 189,800	Ord. Stk.	14	7½	14½	NII
Argentine North Eastern ...	753	31.7.43	13,056	+ 894	5	59,508	61,224	+ 1,716	6 p.c. Deb.	19½	10	20½	NII
Bolivar ...	174	June, 1943	4,868	+ 500	26	32,414	27,431	+ 4,983	Bonds	20½	9	20½	NII
Brazil ...	—	—	79,200	—	2,100	357,600	392,220	+ 34,620	Ord. Stk.	7½	4	5½	NII
Buenos Ayres & Pacific	2,807	31.7.43	126,000	+ 2,220	5	585,600	568,030	+ 17,570	Ord. Stk.	12½	7½	12½	NII
Buenos Ayres Great Southern	5,080	31.7.43	39,120	+ 9,420	5	198,420	208,700	+ 10,280	"	12½	6	10½	NII
Buenos Ayres Western	1,930	31.7.43	132,591	+ 5,496	5	517,311	564,714	+ 47,403	"	9½	4½	8½	NII
Central Argentine ...	3,700	31.7.43	—	—	—	—	—	—	Dfd.	3½	2½	4	NII
Do. ...	—	—	29,442	+ 8,232	5	135,052	97,979	+ 37,073	Ord. Stk.	8	4	5½	NII
Cent. Uruguay of M. Video...	972	31.7.43	22,313	+ 2,732	45	196,140	247,801	+ 51,661	Stk.	16½	11	14	NII
Costa Rica ...	262	June, 1943	21,939	+ 7,550	20	98,259	63,546	+ 34,713	1 Mt. Db.	90½	89	94½	6½
Dorada ...	70	19.6.43	18,210	+ 822	5	80,466	77,508	+ 2,958	Ord. Stk.	33	4	7	NII
Entre Rios ...	808	31.7.43	15,700	+ 5,530	30	471,400	305,500	+ 165,900	Ord. Sh.	9½	9½	42/6	NII
Great Western of Brazil	1,030	31.7.43	\$591,995	+ \$62,010	24	\$3,904,639	\$3,689,137	+ \$215,502	—	—	—	—	NII
International of C. Amer.	794	June, 1943	7,550	+ 600	30	61,140	44,940	+ 16,200	1st Pref.	1½	5/3	1½	NII
Interoceanic of Mexico	22½	July, 1943	37,737	+ 2,189	30	1,018,347	911,142	+ 107,205	5 p.c. Deb.	11½	5	83½	NII
La Guaira & Caracas...	1,918	31.7.43	ps. 683,500	+ ps. 182,900	4	ps. 1,819,500	ps. 1,448,400	+ ps. 371,100	Ord. Stk.	6½	3½	5½	NII
Leopoldina ...	483	31.7.43	15,947	+ 993	48	168,895	152,464	+ 16,431	Ord. Stk.	1	—	1½	NII
Mexican ...	319	May, 1943	8,096	+ 1,070	29	86,278	109,566	+ 23,288	—	—	—	—	NII
Midland Uruguay ...	382	31.7.43	\$5,212,000	+ \$1,520,000	5	\$22,763,000	\$17,580,000	+ \$5,183,000	Ord. Sh.	77½	3½	76½	NII
Nitrate ...	274	30.7.43	104,734	+ 22,552	52	1,045,065	915,630	+ 129,435	Pr. Li. Sck.	53	40	57½	10½
Paraguay Central ...	1,059	June, 1943	c 103,000	+ c 3,000	46	c 1,137,000	c 959,172	+ c 177,828	Pref.	19½	5½	14½	NII
Peruvian Corporation ...	100	May, 1943	54,108	+ 16,884	30	1,199,049	1,079,313	+ 119,736	Ord. Sck.	59	41	59	3½
Salvador ...	153½	25.7.43	2,605	+ 3,195	29	48,811	55,510	+ 6,699	Ord. Sh.	41½	23½	30½	NII
San Paulo ...	160	June, 1943	50,395	+ 15,125	5	223,061	166,249	+ 56,812	Ord. Sck.	8½	2½	5½	NII
Taitai ...	1,301	31.7.43	1,666	+ 483	48	15,772	13,266	+ 2,506	—	—	—	—	NII
United of Havana ...	73	May, 1943	—	—	—	—	—	—	—	—	—	—	NII
Uruguay Northern ...	—	—	—	—	—	—	—	—	—	—	—	—	NII
Canada													
Canadian Pacific ...	17,034	31.7.43	1,750,000	+ 298,200	30	32,574,600	28,591,800	+ 3,982,800	Ord. Stk.	16½	9½	16½	NII
India													
Barri Light ...	202	30.6.43	17,835	+ 4,928	13	63,075	39,600	+ 23,475	—	—	—	—	NII
Bengal & North Western	2,090	Nov., 1942	264,975	+ 33,087	8	449,400	561,082	+ 111,682	—	—	—	—	NII
Bengal-Nagpur ...	3,267	Feb., 1943	932,775	+ 84,975	46	10,031,400	9,111,000	+ 920,400	Ord. Stk.	102½	88	102½	3½
Madras & Southern Mahratta	2,939	30.4.43	286,500	+ 48,748	4	840,375	681,698	+ 158,677	"	105½	87	107½	6½
Rohilkund & Kumaon	571	Nov., 1942	555,750	+ 5,072	8	115,950	99,909	+ 16,041	"	103½	88½	103½	4½
South Indian ...	2,349	10.5.43	200,221	+ 20,512	6	785,730	707,160	+ 78,570	"	—	—	—	NII
Various													
Egyptian Delta ...	—	10.6.43	13,955	+ 2,968	10	98,431	75,685	+ 22,746	Pr. Sh.	5½	1½	2½	NII
Manila ...	—	—	—	—	—	—	—	—	B. Deb.	44	35	37½	4
Midland of W. Australia	277	May, 1943	34,519	+ 7,674	48	355,515	229,955	+ 125,560	Inc. Deb.	95	90	100	NII
Nigerian ...	1,900	24.4.43	67,398	+ 15,900	2	246,144	191,234	+ 54,910	—	—	—	—	NII
South Africa ...	13,291	19.6.43	880,625	+ 84,639	11	9,556,435	8,658,995	+ 897,440	—	—	—	—	NII
Victoria ...	4,774	Jnn., 1943	1,480,058	+ 169,521	—	—	—	—	—	—	—	—	NII

Note. Yields are based on the approximate current prices and are within a fraction of ½.
† Receipts are calculated @ 1s. 6d. to the rupee

Argentine traffic is given in sterling calculated @ 16½ pesos to the £
£ ex dividend